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A Publication
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Ontario Institute
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Ideas
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ORBIT 16

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An Apology to St. Anthony's Roman Catholic Separate School

Through an unfortunate error, this school was listed, in 'Profile of a School/16,' *Orbit 14,* as St. Anthony's Public School. Our sincere apologies to the principal and staff.

Editor

Vol. 4/No. 1/February 1973
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ORBIT 16

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Contributions: We should be glad to receive from readers articles about educational practice, criticisms of past issues of *Orbit*, and suggestions for future issues. Before submitting full-length articles, for which an honorarium will normally be paid, a preliminary letter should be sent to the editor.

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Merrill Swain and Henri C. Barik,
Modern Language Center, OISE

French Immersion Classes: A Promising Route to Bilingualism

Among Canadians there are many who look with envy and admiration at those who speak both English and French fluently. Bilingualism has often been achieved through informal exposure to the two languages in childhood rather than through formal training in the second language. But with the increasing emphasis in Canadian society on bilingual attainment, it is becoming apparent that the educational system must find methods to ensure the development of bilingual skills. Various innovative programs in bilingual education already exist (Swain, 1972). In this article, we focus on one such program – the French immersion class in which young English-speaking children are taught entirely in French.

Not surprisingly, French immersion programs in Ontario's public educational system were first introduced in Ottawa, a city where the need for bilingual skills is particularly obvious yet where students are leaving high school unable to communicate adequately in the second language. Several other factors have also led parents and educators to establish French immersion classes in the Ottawa public schools.

First, psychological and neurological research supports the idea that a young child learns a second language more easily than an adult. Penfield and Roberts (1959) claim that there is a 'critical period' (birth to preadolescence) during which languages are easily learned owing to the way in which the human brain functions.

Second, teachers have become more aware of the fact that in order to teach a language there must be an opportunity for students to *use* the language. In other words, the language must be seen as a means to an end rather than as an end in itself. The language must be used as a tool for communicating.

Third, the results of a program initiated in 1965 by the South Shore Protestant Regional School Board in St. Lambert, Quebec, in which English-speaking children received most of their schooling in French at the early grade levels, suggested that children taught this way could progress satisfactorily in both English and French as well as in other school subjects such as arithmetic.

As a result of these developments, the Ottawa and Carleton Boards of Education decided to offer a choice to the parents of children entering kindergarten in the fall of 1970: their child could attend either a regular English kindergarten or one in which instruction would be carried out entirely in French. That year, over two hundred English-speaking children were enrolled in the initial year of the French immersion program in the Ottawa area public schools. The intention of the educators was that the children in the French kindergarten would follow the same curriculum as those in the regular English classes.

At the kindergarten level, the term 'French immersion' is actually somewhat misleading. Although the teacher addresses the children only in French, the children continue using English in their spontaneous speech throughout most of the year. No attempt is made to discourage the children from using English. Instead, the teacher encourages the children to use more and more French as the year progresses.

In 1971/72 the children who had been enrolled in the French kindergarten advanced to grade 1 classes, where all instruction was again provided in French. As a consequence, these children first learned to read in French, their second language. At this stage, the term 'French immersion' is more appropriate. The children in this grade increasingly use French whenever they speak to the teacher. Furthermore, they frequently converse among themselves in French. By the end of grade 1, French is clearly the language of the classroom.

Also in 1971/72 a new group of over four hundred English-speaking children in the Ottawa area public schools, as well as about fifty children in Toronto's Allenby Public School, were enrolled in French kindergartens.

This year (1972/73) the children in the existing programs have progressed another year and a new group of English-speaking children have entered French kindergartens. In grade 2, instruction continues to be in French, with one major exception – the children receive approximately an hour a day in English language arts. The projected plan for this bilingual program is that with each successive year additional course material will be taught in English until a balance is reached, with half of the school curriculum being taught in French and half in English.

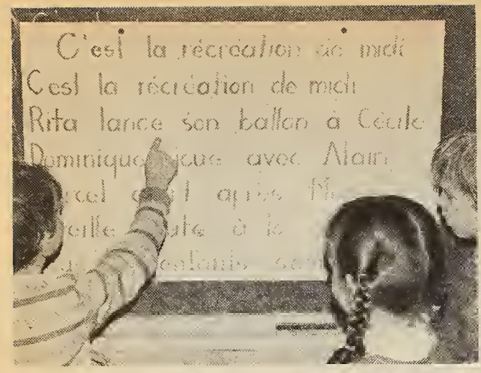
It should be noted that in the Ottawa area the separate school system has also initiated a French immersion program. The separate school program has three major differences from the one described above. First, at the kindergarten level, a child may attend both French and English kindergarten programs. Second, at the grade 1 level, religious instruction is in English. Third, English language arts are not introduced into the curriculum until grade 3.

When the French immersion program was initially being considered by the Ottawa and other school boards, the OISE Modern Language Center proposed and set up a large-scale research and development project, called the Bilingual Education Project – or BEP for short (Stern, 1970). This project is concerned with the planning, development, and evaluation of bilingual programs. The Ottawa and Carleton Boards offered BEP its first opportunity to study these questions in Ontario.

BEP and Curriculum Development

The French immersion program is by no means a glorified, non-stop language lesson. If it were, it would lose its educational justification. The curriculum of a French immersion program has three aspects that need to be kept in mind.

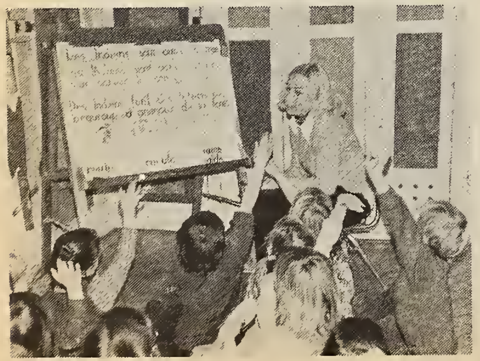
The first aspect is the *common core*. The core of the curriculum of the French


C'est la récréation de midi
C'est la récréation de midi
Rita lance son ballon à Cécile
Dominique joue avec Alain

immersion program must be the same as that of the regular English program in Ontario.

The second aspect is the *language element*, which makes the French immersion class different from its English-medium equivalent. This French language element is not added or squeezed in as an extra. It is the medium through which the common core is presented. How to present the common core in French so that it provides a good education and at the same time teaches the language is one of the concerns of the Bilingual Education Project. The common core must be reinterpreted through the medium of French, and linguistic adjustments must be made because the pupils are not native speakers of French. Some curriculum materials concerned with arithmetical concepts have been prepared by BEP with these requirements in mind.

While the language element adds little to the substance of the program, the third aspect, which could be described as the *French cultural element*, makes the substance of the French immersion program different from its English-medium counterpart. A language is more than a set of symbols; it is a part of a cultural fabric. In developing the curriculum, one should not attempt to offer a mere translated version of what is available in English but to infuse into it French elements. These can be Franco-Ontarian, Québécois, or European French in origin. But it is the infusion of French cultural elements that will enrich the program and make it particularly valuable. Such cultural elements include the presentation of the stories, folktales, events, songs, rhymes, and traditions of Francophone communities.



BEP has made a start in gathering together such materials from French communities in Canada and Europe. From these, along with material already being used in French immersion classes, an annotated bibliography will be prepared that should be especially useful to boards considering the establishment of French immersion programs. BEP has also prepared a number of 'Centres d'Intérêt' based on materials collected to date that are now in use in the French immersion classes.

BEP and Evaluation of French Immersion Classes

In initiating the French immersion classes, the boards of education involved were naturally concerned about how the children in the program were progressing. Specifically, they wanted to know:
1) Did the children in the French immersion program know more French at the end of the year than those who were in the regular English program and who had approximately twenty to thirty minutes a day of French taught to them as a second language?
2) What effect did instruction in a second language have on IQ and general cognitive development?
3) What effect did instruction in a second language have on achievement in such basic academic skills as arithmetic and reading?

To investigate these questions, a battery of tests was administered in the spring of 1972 to a random sample of children enrolled in the French immersion kindergarten classes in the public school system and to a comparison group of children enrolled in the regular English kindergarten classes in the same schools. A battery of tests was also administered to all children enrolled in the French immersion grade 1 classes in the public school system and to a comparison group of all children enrolled in the regular English grade 1 classes in the same schools. In all, over a thousand students were tested. Following is a summary of the 1972 evaluation program and its results. For a more detailed report, see Barik and Swain (1972).

Kindergarten
The battery of tests given to the kindergarten children consisted of four tests, all of a pictorial nature.
1) The Otis-Lennon Mental Ability Test (Primary I level, Form J), which is a general intelligence test.
2) The Metropolitan Readiness Test (Form A), which measures the child's readiness for beginning school work. The six sections of the test are *word meaning*, a picture-vocabulary test; *listening*, a test of phrase and sentence comprehension; *matching*, a test of visual perception involving the recognition of similarities; *alphabet*, a test of ability to recognize lower-case letters of the alphabet; *numbers*, a test of number knowledge; and *copying*, a test of visual perception and motor control.
3) The Stanford Early School Achievement Test (Level I), which is designed to provide a measure of the child's cognitive abilities. It consists of four parts. The first section, *the environment*, measures the degree of information possessed by the child about his natural and social environments. The second section, *mathematics*, aims at concepts that can be learned from general experience rather than from direct intervention through teaching. The third section, *letters and sounds*, measures the ability to recognize upper- and lower-case letters and the auditory perception of beginning sounds. The fourth section, *aural comprehension*, contains items requiring the ability to pay attention to, organize, interpret, and retain what has been heard.
4) The French Comprehension Test, which is a test developed by BEP to measure the child's comprehension of French. (There exist no published tests of French as a second language that are suited for use in French immersion classes.) The test is still in its experimental form and will undergo further revisions. It consists of items requiring the child to identify pictures that are referred to by a spoken French word, short phrase, sentence, command, question, or short story.

Results: Statistically, deviation IQ scores (Otis-Lennon Mental Ability Test) of the children in the French immersion kindergarten classes were significantly higher than the scores of the children in the regular English kindergarten classes. The IQ difference between the two groups is rather intriguing. This might mean that the children enrolled in French immersion kindergarten classes were in fact a select group of pupils – that is, these children were 'brighter' to begin with. Or it might mean that the higher scores shown by the French immersion children at the end of the kindergarten year are attributable to the enriching experience of the French immersion program itself. To test this, a measure of IQ would have to be obtained at the beginning of the kindergarten year to see whether the children enrolled in the French immersion classes and the children enrolled in the regular English classes start out the same. Although such data were not gathered with the 1971/72 population, they are being obtained for pupils presently enrolled in kindergarten.

Though not readily explainable, it was also found that there was a small but significant difference in the average age of the two groups of children. Thus, the scores of the remaining tests were adjusted for IQ and age differences, and

comparisons were made between the groups through a statistical procedure known as analysis of covariance.

Analysis of covariance revealed that there were no differences between the two groups of children on the total scores of either the Metropolitan Readiness Test or the Stanford Early School Achievement Test. Nor, with one exception, were there any differences between the two groups of children on the scores of the various sections of these tests. The exception was on the aural comprehension section of the Stanford Early School Achievement Test, in which the French immersion children obtained significantly higher scores.

The analysis also revealed that the children in the French immersion kindergartens scored significantly higher than the children in the regular English kindergartens on the French Comprehension Test, and also considerably higher than the grade 1 children in the regular English program who had received twenty to thirty minutes a day of French instruction in both kindergarten and grade 1.

Grade 1
The battery of tests given to the grade 1 children consisted of five tests.
1) The appropriate form of the Otis-Lennon Mental Ability Test (Elementary I level, Form J).
2) The Metropolitan Achievement Test (Primary I Battery, Form A), which is concerned with reading and arithmetic skills taught in grade 1. It consists of four sections: *word knowledge*, a test of the child's word recognition ability in English; *word discrimination*, a test of auditory and visual discrimination; *reading*, a test of ability to read and comprehend sentences and paragraphs in English; and *arithmetic concepts and skills*, a test of mastery of basic numerical and quantitative concepts, ability to solve verbal problems, and ability to add and subtract.
3) The French Comprehension Test.
4) The Test de Rendement en Français (Grade 1), developed by the Commission des Ecoles Catholiques de Montréal, which involves the identification of phonetic sounds, word definitions, vocabulary, spelling, and sentence comprehension in French.
5) The Test de Rendement en Mathématiques (Grade 1), also developed by the Commission des Ecoles Catholiques de Montréal, which consists of items involving elementary set theory, addition and subtraction, equations, and oral presentation of short problems in French.

The last two tests were given to the pupils in the French immersion program primarily to see how they would compare with native French-speaking children.

Results: The mean deviation IQ score (Otis-Lennon Mental Ability Test) of the children in the French immersion grade 1 classes was equivalent to that of the children in the regular English grade 1 classes. These same children had been tested in the spring of 1971 when they were in kindergarten. At that time as well, no difference in intelligence scores of the two groups of children had been found.

The children in the French immersion grade 1 classes did not do as well as the comparison group in three of the four sections of the Metropolitan Achievement Test: word knowledge, word discrimination, and reading. The differences in the average scores of the two groups of children were statistically significant. This finding is not surprising, because the French immersion children have had no formal training in English. The scores of the French immersion children show that they rank at about the fortieth percentile in these three subtests, which means that even though they have never learned to read in English in school, they still do better on these sections of the test than 40 percent of the school population who learned to read in English in grade 1 and for whom the test was developed. This means that the French immersion children are able to transfer part of their reading ability from French to English without being formally introduced to reading in the latter language, and thus there is good reason to believe that the lag that the French immersion group exhibits relative to the comparison group in English reading skills will disappear after a year or two. The St. Lambert studies have in fact shown this to be the case (Lambert and Tucker, 1972).

The two groups of children obtained equivalent scores on the arithmetical section of the Metropolitan Achievement Test. Thus, the French immersion grade 1 children mastered as much mathematical knowledge through French as the children in the English grade 1 mastered through English, and they were able to transfer this knowledge from French to English.

The French immersion grade 1 children obtained much higher scores on the French Comprehension Test than the English grade 1 children, the difference being highly significant.

The scores obtained by the French immersion grade 1 pupils on the two tests developed for native speakers of French in Montreal (Test de Rendement en Français and Test de Rendement en Mathématiques) suggest that they are progressing satisfactorily. The children do as well as approximately 50 percent of the native speakers of French on the Test de Rendement en Mathématiques and as well as approximately 30 percent of the native speakers of French on the Test de Rendement en Français.

Concluding Remarks
Judging from this study and ones related to it (Lambert and Tucker, 1972, and Edwards and Casserly, 1972), the French immersion program appears to be a promising route to the acquisition of bilingual skills. Other forms of bilingual education should be considered and may likewise prove adequate. For example, a program in which the two languages are used alternately as the medium of instruction for specified units of time (e.g., a half a day, a full day, a month, a semester) may be preferable in certain contexts. It is clear that achievement of bilingualism provides a challenge to educational innovation.

Note: Anyone interested in finding out more about French immersion classes should write to the authors of this article at the Modern Language Center, OISE.

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The photographs are of the new open plan school discussed in the article

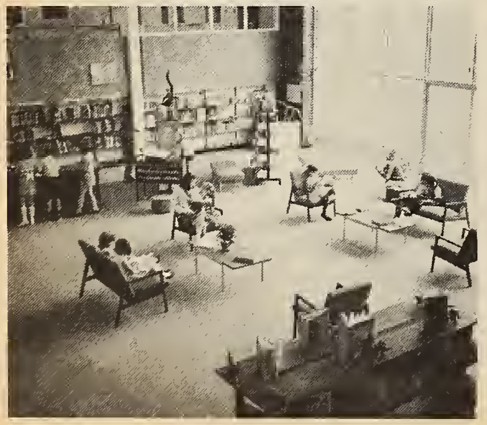
A Study of Students

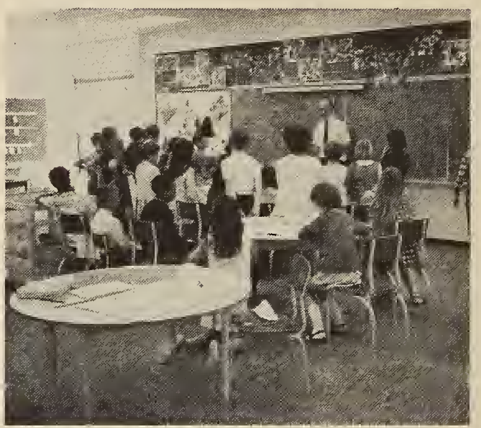
Much has been said and done since Dewey first wrote about progressive education. Today, his original proposal finds widespread expression in the open plan school, although the concepts and purposes attached to such a school have expanded to the point where a single philosophy no longer applies. Looked at superficially, the popularity of the open plan organization is easy to understand.

Its supporters claim that it turns out students who mature faster, who are more self-reliant, and who have better attitudes toward education and their environment. These claims, however, have undergone little validation, and the aim of the study outlined in this article was to examine the open plan organization and to see whether the findings would support the claims for it.

Eleven- and twelve-year-old students from four schools in suburban Toronto – two open plan and two traditional – took part in the study. One of the open plan schools was a lab school, which had operated for six years under the open plan philosophy. Of the fifty-eight students from this school involved in our study, nine were new to the school at the time we were collecting data. The school building was of traditional design, but freedom of movement and the ingenious use of space not normally occupied by classes introduced an unusual degree of flexibility.

The other open plan school was new at the time of testing; it was of contemporary design and its architecture conveyed a sense of freedom. Although the forty-six students in our study were just getting settled, they had been exposed to the open plan philosophy from school opening in the preceding September. The principal of the school and a number of staff members had held similar positions in the lab school and, for the most part, the staffs of the two schools shared a common philosophy.





Both open plan schools were nongraded, used a discovery approach to learning, and followed programs of self-development and self-discipline. Each student was expected to plan his own day, to do things for himself, and to interact with the teacher as a resource person rather than as an authority. Raising hands to ask questions was discouraged and students were expected simply to speak in turn. They were also expected to exercise responsibility in their use of materials and to turn up at school on their own. Recess and lunch breaks were left to them, and frequently they chose not to interrupt their activities to take recess or to go home at the end of the official school day. Individual curiosity and creativity were actively fostered.

The control group in the study was made up of fifty-nine students, drawn from two traditional schools. In these schools, subjects were studied through instruction and exercise, discovery learning was not used, and most activities were teacher directed. The students occupied conventional classrooms and were seated at rows of desks.

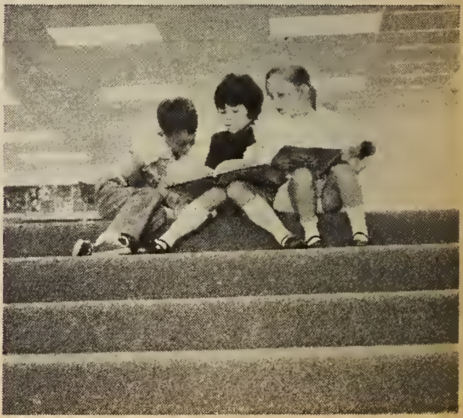
Evaluation

Three sets of evaluation materials were used in the study. The first was a semantic differential questionnaire to measure attitudes. There were six concepts: 'books,' 'learning,' 'teacher,' 'I,' 'school,' and 'school last year.' Each concept was rated on twenty-one adjective pairs using a seven-point scale. The adjectives were: hard-soft, definite-uncertain, sharp-dull, sick-healthy, pleasing-displeasing, weak-powerful, small-large, complex-simple, interesting-boring, calm-exciting, ugly-beautiful, deep-shallow, passive-active, happy-sad, rough-smooth, good-bad, hazy-clear, hot-cold, meaningful-meaningless, relaxed-tense, and likeable-dislikeable. These adjectives represent the three dimensions described by Osgood, the author of this questionnaire – potency, activity, and evaluation.

The second set of evaluation materials used was the Torrance Minnesota Tests of Creativity to assess productive thinking. Four of these tests were used: *Product Improvement,* in which the subject is shown a picture of a toy dog and asked to write all the ways he can think of to make the toy more interesting for children to play with; *Unusual Uses,* in which the subject is asked to suggest unusual uses for a tin can; *Figure Completion,* in which the subject is presented with a series of ten incomplete figures to be completed as he sees fit; and *Circles,* in which the subject is presented with forty circles and is required to finish them in any way he chooses.

Third, two questionnaires to assess curiosity were used. These were the Specific Curiosity Questionnaire, a thirty-six-item, true-false test, and the Reactive Curiosity Questionnaire, a one-hundred-item, true-false test, with a built-in lie or validity scale. These were administered together.

All testing was carried out during regular school hours and in the regular school



F. S. Wilson, Toronto Board of Education
R. Langevin, Clarke Institute of Psychiatry
T. Stuckey, OISE

Open Plan Schools

setting for both groups. Three separate periods were used to measure attitudes, creativity, and curiosity. Standard instructions and standard scoring were used throughout.

Results

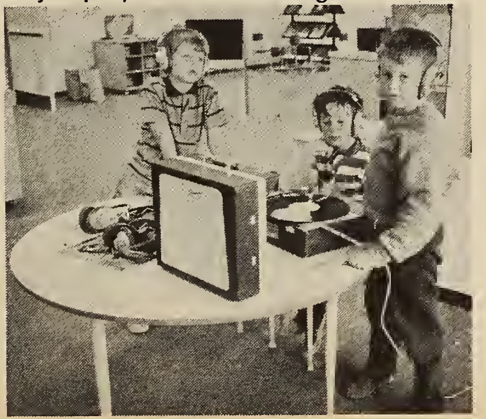
Attitudes
In all cases, the attitude of the open plan students toward school was more positive than that of the controls. They saw school as more active and likeable. This supports the popular claim that students find school a better place to be under the open plan arrangement. The attitudes to 'school last year' proved to have little significance since, with the exception of those in the new school, most of the students had been in the same setting the preceding year.

The concept 'I' revealed some interesting differences, although all pupils showed positive self-regard. The open plan students saw themselves as having a stronger self-image than the controls and evaluated themselves more positively. The students from the new open plan school rated themselves as more definite and slightly better and clearer than those from the lab school. This may have been due to a combination of factors: the influence of their teachers, many of whom were from the lab school; the architecture of and sense of freedom in the building; and perhaps the sheer novelty of the experience.

The concept 'books' brought to light some interesting differences not only between the two types of schools but also between the new open plan school and the lab school. Students from the open plan schools found books more interesting and exciting than students from the control schools. Students from the new open plan school found them more 'definite, sharp, healthy, and pleasing' than those from the lab school – possibly because they were just discovering that they could read what they chose. However, little significance was attached to these findings as a measure of effectiveness, since school is only one of a number of factors that colors a student's attitude toward books.

'Learning' was a concept that evoked general agreement. All groups tended to give a positive evaluation. Virtually the same situation applied in the case of 'teacher.' All of the students taking part in the study tended to like their teachers, and this fact may have exerted a favorable influence on their reaction to the concept.

Curiosity and Creativity
One-way analyses of variance were used to compare the three groups on two measures of curiosity and eighteen measures of creativity. The groups showed no marked differences in curiosity, but significant differences were revealed in all but two of the creativity measures. Somewhat surprisingly, students from the new open plan school ranked lowest of all on the creativity measures. Since these children were still somewhat disoriented as a result of their move, these scores may be misleading. In five of the measures, lab school subjects were significantly superior to the other two groups, and in ten measures, there was a trend toward higher scores for the lab school. Among the lab school students, further examination of the results indicated that creativity tended to vary in proportion to the length of time spent in an open plan setting.



Discussion
While these findings tend to support the claims made on behalf of the open plan school, full assessment of the situation was not possible in this study. Many factors involved cannot be measured by paper and pencil tests, and methods to assess the complexity of classroom activities were lacking.

It must also be remembered that educational research is always faced with a problem in comparing schools. As in a comparison of personalities, idiosyncracies affect results and this possibility cannot be ruled out in the present study.

The principals and teachers in the open plan schools concerned were enthusiastic advocates of the philosophy. Our subjective impression was that they were atypical educators, and it is an open question whether the average teachers' college graduate could function as well in such an environment.

Nevertheless, looked at in general terms, the results of this study suggest that the open plan setting is associated with more positive attitudes on the part of students both toward themselves and toward their schools. Troublesome students are rare. The open plan philosophy provides for permissiveness, not license – at least, in the schools investigated – and in a properly run open plan school, contemporary educational goals may be more readily realized.

Note: A more detailed summary of this study appeared in the *Journal of Educational Research,* November 1972, pp. 115-8.

Pamela Hodgson, OECA

There's a World of Difference

What was happening in the Utilization Centre that November Friday, 1972? It was no normal television workshop. Negotiations, deals, alliances, trade agreements, coalitions were being formed and broken.

A new media simulation game, developed by a Utilization consultant of the Ontario Educational Communications Authority (OECA), was having its first test run. 'Tell the World,' now known as 'There's A World Of Difference,' was being played by students, teachers, housewives, audiovisual consultants, friends, and members of the OECA staff. They chose to act as ministers of six model countries or as representatives of three types of media: television, radio, and newspaper.

During the game, newspaper women worked feverishly to meet deadlines, radio reporters broadcast the latest rumors, and at one time an international television station was being sabotaged.

The chief ministers of each country concentrated on national and international decision-making processes. Toward the end of the game, they attempted to form an international consortium for world trade and peaceful negotiations.

Describing the game later, one of the chief ministers remarked: 'Arranging of trade agreements became our consuming passion. Often three ministers were out of the country negotiating deals and occasionally we entered into conflicting agreements, which created internal problems in our country.'

What is a simulation game? It's an often-heard question. A working definition is that it is a situation so contrived that players, through their own actions and the actions of others, are led to an understanding of certain concepts.

Do people really learn anything from simulation games? This is another frequent question. Most of the learning does not actually take place during the game but comes out in the debriefing process after the game has been played. The chief minister quoted above commented: 'The debriefing was excellent. It not only gave us a chance to assess our own points of view, but also to hear what other groups had been attempting to accomplish in the game and to relate what we had been trying to do with them. We were able to assess what had been going on in a more total way.'

Simulation games are becoming more popular. Many teachers in Ontario are already familiar with 'Operation Moonvigil,' OECA's unique television simulation game designed to help students in grades 5 to 9 learn about institutions. The teachers have expressed a desire for more simulations. However, the demand is also increasing in business, industry, and social agencies, and many Canadian organizations have been sending their staff to simulation conferences and workshops in the United States. To help meet the needs of these various groups, OECA is holding five workshops throughout Ontario on simulation use and design. 'There's A World of Difference' was specifically created to form part of these workshops.

The workshops have been designed primarily as an introduction to simulation games, and social studies games are being stressed. Using, modifying, and making simulation games are the focal activities of the workshops, which provide a basic understanding of the kinds of learning simulation games elicit, the situations in which they can best be used, the different types of games that are available, and the ways in which individuals can adapt or design their own games to suit their own particular situations.

Simulation is no universal panacea for the frustrations of the classroom, the office, or the agency, but well-designed games, properly administered, can achieve certain goals. Game designers and users, particularly in the United States, are currently examining the benefits and drawbacks of simulation. Opinions range from the reserved to the enthusiastic.

Harold Moeller of the Church Centre for the United Nations has used simulation in an experimental program in international affairs and he feels very positive:

'We use simulation to open persons to consideration of otherwise crippling subject areas. Many issues and problems are not only immense and complex but also are laden with threatening emotional overtones. When persons confront these kinds of problems head on, they often feel inadequate, powerless, and therefore defensive. Simulation games can aid skills of issue analysis by presenting a slice of reality in a setting where the learner's existence is not directly threatened.'

Mr. Moeller's last comment hits directly on the essence of simulation. He continues: 'More of the reality can be introduced as the learner becomes able to hear it. In this way learners can also gain insight into many of the dynamics of a reality without a thorough study of the substantive content of the issue.'

Not to deny Mr. Moeller, but to promote realistic assessment of simulation and gaming, Thomas Wiggins of the College of Education at the University of Oklahoma warns: 'Beware of simulation sensationalism.' In his article in the May 1972 issue of *Simulation/Gaming/News*, he states:

'The concept of gamed instructional simulation is currently riding a crest of popularity [in the U.S.] which borders upon faddism, and which may blind users to the associated advantages and dangers involved. Like so many innovative and potentially valuable training devices, simulations and games are appealing because they are different, they necessitate involvement and participation, and they tend to inject interest and excitement into learning.

'They have the potential of lulling the teacher into a condition where the process takes precedence over the purposes and products associated with the training. Simulations and games . . . are potentially useful tools to be carefully and strategically placed in training enterprises in order to facilitate overall training objectives and goals.'

The OECA workshops are an opportunity for those interested in the technique of simulation to explore further both these and other attitudes and to experience firsthand what simulation gaming is all about. After such an experience, we feel people will be better able to judge for themselves the appropriate uses of simulation games. For more information about these workshops, which are to be held in March and April, please write to:
OECA
Simulation Workshop,
2180 Yonge St.,
Toronto 295, Ontario.

Education and the Future

Desmond E. Berghofer,
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The future is not what it used to be. The world is riding on the back of a tiger that continuously carries all of us, old and young alike, into unfamiliar territory. The tiger is called Change, his source of energy is technology, and the terrain across which he lopes is that marginal country between present and future.

We are just beginning to realize that the ride is rough. While the way ahead remains perpetually shrouded in mist, the speed of our tiger and the directions he takes make us day by day less sure of what to expect behind the mist and less certain that we can cope with it.

Faced with this basic uncertainty about what lies ahead, we are paying more and more attention to the future, not so much out of idle curiosity but rather in the hope of finding a better way to manage human affairs. We are, in short, beginning to realize that under conditions of rapid change the future becomes a legitimate field of inquiry. My purpose in this article is to present an overview of some approaches to studying the future and to show the way in which such inquiry is relevant to public education.

The Future as a Field of Inquiry

The systematic study of the future has given rise in recent years to an activity variously known as futurism, futurology, or futures research. This area of inquiry has already assumed many of the attributes of a proto-discipline, and the published literature in the field is now so extensive that no single person could follow it all.

The approach to this field of inquiry rests on certain basic assumptions about the future. In the first place, most people working in this field would emphasize that the future has no existence except in the human mind. It is a mental construct that stands for something we cannot quite get our hands on. Moreover, there is no single predetermined future but rather an array of possibilities, any one of which is open to mankind. What this means is that man, by his conscious choices, can actually affect the future. He has, in short, 'a choice of futures' (Alberta Commission on Educational Planning, 1972).

Assertions about the Future

Impoverished Images

One writer who might be called an early futurist, Fred Polak (1961), has emphasized the importance of the quality of human thought as a determinant of what eventually comes about. His argument is that positive images of the future have the effect of pulling society toward the fulfillment of those images. His concern is that modern Western man is so preoccupied with the present that he refuses to think systematically about a radically different and better future. This attitude of mind stands in marked contrast to that exhibited by Western man's counterpart in previous centuries and by his contemporaries in many parts of the non-Western world today.

According to Polak, the almost dormant awareness of the future must be reawakened. He sees the modern educational system as playing a logical and important part in creating new visions of the possible, but he is not altogether optimistic that it can find the vigor to achieve this important task. It has, perhaps, been deadening minds with passive acceptance of the inevitable for too long to be able to reverse the trend.

Dominance of the Mechanized World Picture

The underlying concern in Polak's analysis is his fear of the extinction of Western culture. This preoccupation, however, seems to have distracted him from giving due consideration to the possibility that Western culture is presently in a state of atrophy because it took a wrong turn in an earlier age. If this is the case, then corrective action could presumably be taken by correcting the thinking.

On this point, Lewis Mumford (1970) has developed the argument that the thinking of modern Western man is dominated by a mechanical view of the world, which has grown out of deliberate choices made at least as far back as the Middle Ages. It is this mechanized world picture, this viewing of man and his world as a complex of interacting machines rather than as living organisms, that has brought modern man to a desperate situation.

Tracing this view of reality back to such esteemed figures as Galileo, Descartes, and Francis Bacon, Mumford asserts that science and technology have become welded to power and productivity, and the whole destructive complex is fed by a mechanistic educational system. The result is a colossal 'megamachine,' bent on consuming the world but more likely to splinter into chaos due to irreconcilable forces within.

Mumford, however, sees an alternative to both of these depressing perspectives. He sees man adopting a new world picture, one in which finiteness and limitation are recognized as necessary attributes of life. The mechanical world picture would be replaced with an organic view, in which man would accept that he is a part of nature and that his salvation does not lie in mindlessly trying to bend it to his will. Whether such a world view will take hold in a sufficient number of minds to avoid ecological disaster, Mumford is not prepared to say. It is still too soon to tell.

Future Shock

Because he is critical of the uncontrolled excesses of technology, Mumford has been criticized as being unrealistic and past oriented. One who has leveled this criticism is Alvin Toffler (1970), author of the runaway best seller, *Future Shock*. Ironically, however, Toffler's position is really not essentially different from Mumford's; although he looks forward to a superindustrial state, the ethos in which he sees it existing is one in which such basically 'human' goals as self-fulfillment and social consciousness would replace goals of economic and national power.

Toffler's thesis is that there are limits to the amount of change that the human organism can absorb, and to exceed those limits is to run the risk of plunging the organism into a state of future shock. In presenting this thesis, Toffler tends to confuse his reader because one is never quite certain whether he is saying that man can control his future or that he must adapt to it. Probably he has to do both, but Toffler tends to flirt with this issue rather than address it honestly.

Because of this ambivalence, one has to consider carefully Toffler's recommendations for educational change. He asserts that the prime objective of education 'must be to increase the individual's "copeability" – the speed and economy with which he can adapt to continued change.' Having said that, however, he then puts forward suggestions that are very similar to Polak's proposals for creating a new vision of the possible. Toffler condemns present education as an anachronism 'cranking out industrial man' and suggests that a Council of the Future be established in every school and every county, with the mission of transforming the organizational structure, revolutionizing the curriculum, and encouraging a more future-focused orientation.

Essentially, what Toffler appears to be saying is that the future must take a turn away from the present course of proliferating change without control. He sees education as playing a very important part in such redirection. However, he places undue emphasis on mechanisms, on new ways of doing things, without relating them to a philosophical position that asserts that in order for there to be a difference in outcome there must first be a difference in the way reality is viewed.

A Crisis of Worldwide Proportions

It may be that in highlighting the catchy notion of 'future shock,' Toffler has sidetracked the discussion of the future from the most powerful argument of all: that man, because of past and present behavior, is on a collision course with ecological disaster.

At the forefront of those who are presenting this line of argument – and backing it up with factual evidence – are members of the scientific community, most notably the biologists. Two Canadian-based researchers, Brinkhurst and Chant (1971) have put the case very clearly:

'Life for any species is always a compromise between *the need to use the environment and the need to preserve it unaltered* for continued existence. We are already altering too much the atmosphere, the heat, the light, the finite resources, the fragile renewable resources. Our population is exploding. Our industrial sophistication is increasing. A fatal collision with our environment is inevitable if these trends continue.'

In discussing ways to deal with this situation, Brinkhurst and Chant emphasize that what they are talking about is the '*need to adjust our whole way of life* to accommodate an entirely new, global view of the earth that man inhabits.' They suggest that, preoccupied with ideas of growth and nurtured in a religion that grants us dominance over nature, we are totally lacking an environmental ethic. They urge that the development of such an ethic be the worldwide goal of our educational institutions if we are to survive.

A World-System View of the Crisis

The biologists' argument is compelling, but even more graphic is that which has come quite recently out of a project undertaken by the Massachusetts Institute of Technology. The approach used by the MIT people consisted essentially of building a theoretical model of the world viewed as a giant social system, programming this model on a computer, and then obtaining an array of alternative futures by manipulating key variables in the model.

This approach was pioneered by Forrester (1971), who focused on population as the key determinant of the future. His analysis revealed that the future is determined largely by five variables – population, natural resources, pollution, capital investment, and food production – which interact in a multiplicity of ways. The essential point demonstrated by Forrester is that all of these variables must be dealt with simultaneously if the world is to avoid a future catastrophe, one in which literally millions of people will be wiped out simply because the world's ecological system will not be able to support the pressures generated by unrestricted growth. Moreover, if this is allowed to happen, it is unlikely that the world would be able to recover; any survivors would therefore be destined to live on an exhausted planet.

Forrester contends that mankind has been heading toward this depressing future for thousands of years, but it may now be less than a lifetime away because we are riding an exponential growth curve that gets steeper and steeper as time goes by. In less than fifty years we could pass the threshold of no recovery – if we have not, indeed, already done so.

Forrester's analysis was published in 1971, but it received very little attention outside of academic circles. Interestingly enough, however, a subsequent analysis, one that refined Forrester's original model and came up with almost identical conclusions, has received widespread publicity. This work was initiated by Meadows (1972) and was published under the title *The Limits to Growth.* Although it has been attacked as 'pretentious nonsense' by economists of the old school, its influence is apparent when one notes that *The Financial Times* of November 20, 1972, spent an entire page wondering about its central concept – zero growth.

Forrester and Meadows do not claim that their model of the world is infallible. They admit that it is a simplification of reality, but they point out that it is much more comprehensive than the model that decision makers in government and business presently carry around in their heads. They urge that the developed countries of the world – the ones that are exerting great pressures on the planet – begin immediately investing resources to find ways of implementing the policies necessary to give us more attractive future alternatives than those to which the 'natural' socio-technical-economic-political system now appears to be leading.

Where Does Education Fit In?

Are we on a collision course with catastrophe? Has mankind, like the sorcerer's apprentice, set in motion an uncontrollable force that has given short-range benefit but promises long-range destruction? Is it perhaps impossible for an advanced technological society to persist indefinitely in a closed ecological system? Such questions lie at the heart of the analyses reviewed above. They were there at the beginning and they still remain at the end – unanswered. Such is the reward of those who probe the future.

But despite the basic uncertainty of their conclusions, studies of the future are valuable because they sketch in a backdrop against which decisions can be made. Although the backdrop is blurred, the fact that it is present forces us to consider where the multiplicity of activities that constitute life in a highly technological society might be leading us. In this way we are encouraged to develop a sense of direction rather than plunge ahead, unmindful of the consequences.

When we look at studies of the future from this point of view, their significance for education becomes readily apparent. Education is, by definition, concerned with the welfare of the individual and society. Analyses, therefore, which suggest that we might be driving at full steam toward an array of undesirable futures can hardly be ignored by the institution that is so central to our way of life.

Photo: Pamela Harris-McLeod

But education is riding on the horns of a dilemma. By concentrating its efforts on producing highly specialized individuals, it has successfully created the industrialized society. By embracing the work ethic and promoting the idea that growth is good, it has produced a level of affluence that now threatens to consume the earth. It is unreasonable to expect that man will voluntarily return to an earlier, more simple way of life. But if we continue on our present course, then Forrester's growth curves seem destined to catch up with us.

The challenge facing education in our day, therefore, is to decide what it must do differently to enhance the possibility of securing a desirable future. Of course, the educational system will not make the decisions on its own. As always, it will have to work closely with government and business. But instead of fulfilling the traditional conservative role of supplying whatever the establishment calls for, it must become anticipatory and critical if it is to face up to its responsibilities. Whether or not it can do so remains to be seen.

The analyses of the future reviewed in this article suggest that education should address itself to two key questions. First, it must ask how it can become a means through which mankind is able both to articulate its desires for the future and to learn to understand the limits within which it must live. Second, it must begin to consider ways in which it can place emphasis on human rather than on material values, and by helping man to understand his place in the overall scheme of things, enable him to invent a future that will not prove disastrous.

This article does not supply the answers to these questions. In fact, no report, book, or research document can provide such answers, for they will be found only by the conscious effort of those who are involved in the day-to-day working of the educational system. As educators, we have relied too much in the past on the advice of experts. Now we should come of age and realize that as far as the future is concerned there are no experts. There are many people with ideas from whom we can profitably learn; but having listened and reflected, we must then undergo the painful, continuous task of wrestling with the problems that confront us. Only from such internal, in-house deliberations can come the changes that the future is pressing us to make.

Conclusion

By way of conclusion, it would seem appropriate to reemphasize one salient point. Running through the works reviewed in this article has been the theme that the potential presently exists for a shift away from a vision of reality that has dominated the thinking of Western man for several centuries. That education will be inextricably involved in the cut-and-thrust of conflicting positions surrounding this issue is certain. What the outcome will be is by no means certain. If the shift does not go in the direction that the writers reviewed here believe it should, then it will presumably be because their arguments found insufficient support among the mass of humanity.

However, if a change in the vision of reality does, in fact, take place, then in the words of Willis Harman (1971) – 'It is all of us who [will] need to educate ourselves . . . to the awareness that . . . the strains on the social structure will be such as to demand, for successful passage [of the vision], unusual understanding and dedication.'

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Opinions des instituteurs sur leur formation pédagogique

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Les diplômés des écoles normales ontariennes qui complétaient en juin 1971 leur deuxième année d'enseignement dans les écoles élémentaires d'expression française ont acquiescé à la demande des chercheurs d'exprimer leurs opinions sur l'efficacité de leur formation pédagogique et de suggérer des moyens pour améliorer l'éducation du jeune maître d'école.

Une étude de ce genre, entreprise d'une façon systématique, est loin d'être une coutume dans cette province. Beaucoup ont écrit sur les avantages et les inconvénients des pratiques courantes et une multitude de suggestions furent avancées pour apporter des changements. Les autorités, les professeurs et les experts dans ce domaine de l'Education ont fait voir leur point de vue, mais les diplômés des écoles normales et ceux des facultés d'Education n'ont jamais eu l'occasion de contribuer activement au débat.

Qu'ont donc rapporté ces anciens normaliens francophones de 1968-69? Sur le rendement des programmes d'étude à l'école normale, ces jeunes maîtres ont fait leur propre évaluation. Pour faciliter cette tâche, une échelle d'évaluation fut établie. Elle variait de 'très utile' à 'peu utile.' Les programmes d'étude considérés étaient les suivants: cours théoriques comme la psychologie éducationnelle, la philosophie de l'Education et la méthodologie de l'enseignement; l'enseignement pratique; les activités parascolaires; ainsi que les relations avec le corps professoral de l'école normale. En plus, leurs opinions furent recueillies sur des expériences particulièrement profitables à l'école normale.

Le tableau montre comment les instituteurs ont évalué quatre aspects du programme.

Les trois exemples cités ci-après montrent clairement combien les instituteurs ont apprécié leurs heures de pratique dans l'enseignement sous la surveillance d'un éducateur compréhensif:

'La plupart des institutrices m'ont beaucoup aidé. Ainsi, par exemple, en fournissant le matériel didactique, . . .'

'Ce n'est qu'en travaillant avec un groupe d'élèves qu'on peut évaluer son enseignement.'

'C'est par la pratique qu'on excelle.'

Les quelques instituteurs qui ont cru leur expérience dans l'enseignement pratique comme étant 'peu utile' ont admis qu'ils n'avaient pas eu l'occasion d'enseigner au niveau de leur choix.

Les sujets qui ont trouvé que 'les cours théoriques' étaient 'très utiles' ont fait savoir que c'étaient plutôt les leçons de la méthodologie de l'enseignement et la planification des leçons de classe que les cours de la philosophie de l'éducation et de la psychologie éducationnelle qui se sont révélés plus utiles. Toutefois, une jeune instituteur fit remarquer que les notions philosophiques et psychologiques, apprises à l'école normale, l'ont vraiment aidé à poursuivre des études à l'université. Un autre ajouta que ce sont les connaissances de la psychologie de l'Education et les principes philosophiques des méthodes pédagogiques qui font de l'enseignement non pas un simple métier, mais une vraie profession.

Les instituteurs qui ont trouvé 'les cours théoriques' très peu utiles ont attribué cela à plusieurs causes.

En général, ceux qui ont répondu manifestèrent le désir de voir les exposés théoriques complétés par des exemples concrets tirés de l'expérience même des professeurs, quand ils enseignaient dans les écoles élémentaires.

Comme on peut le voir au tableau, presque la moitié des participants ont admis que les activités parascolaires des écoles normales ont été très peu utiles. Ils donnaient comme raison le temps qu'ils devaient mettre à voyager. Aucun n'a critiqué vertement ces activités en elles-mêmes. En effet, trois instituteurs qui n'avaient pas participé aux activités parascolaires telles qu'elles existaient à l'école normale ont regretté de ne pas l'avoir fait.

Quoique seulement onze pour cent des sujets aient indiqué l'utilité des activités parascolaires, leurs réponses démontrent bien combien ils ont apprécié cet aspect du programme d'étude.

'Etant le vice-président du Conseil, j'ai pu acquérir une expérience enrichissante dans l'administration et l'organisation des affaires.'

'Les cours d'art dramatique que j'ai suivis m'aident beaucoup pour l'enseignement du français et de l'anglais.'

'Ces activités nous aident beaucoup parce qu'elles nous donnent des idées sur l'organisation de notre classe.'

Presque quatre-vingt pour cent des instituteurs ont qualifié leurs relations avec le personnel de 'très utiles' ou 'd'assez utiles.' Quelques-uns ont même loué tout le corps professoral de l'école normale, par exemple:

'J'ai rencontré une équipe très dévouée qui me donnait des conseils et de nouvelles idées.'

'Les professeurs étaient toujours prêts à discuter, conseiller, suggérer, aider. . . .'

D'autres ont mentionné un principal ou un professeur ayant exercé sur eux une influence positive au cours de leur formation pédagogique. Des instituteurs et des directeurs d'écoles élémentaires ont été cités par quelques-uns pour leurs encouragements et leurs inspirations au cours de l'enseignement pratique.

Le questionnaire comportait un item invitant à une réponse libre et personnelle sur les différents aspects des programmes d'étude; ainsi ils devaient exprimer leurs opinions sur n'importe quelle activité jugée utile. Deux maîtres ont rapporté qu'ils avaient été assez favorisés pour avoir pu travailler comme suppléants et qu'ils avaient acquis beaucoup d'expérience et de confiance en eux-mêmes. Plusieurs ont signalé avec reconnaissance que des collègues de l'école normale leur ont été d'un précieux secours dans leur développement pédagogique ou personnel. Une institu-

Distribution en pourcentage des opinions des instituteurs sur l'appréciation des programmes d'étude à l'école normale

Aspects du programme	*Appréciation*		
	très utile %	assez utile %	peu utile %
les cours théoriques	10	61	29
l'enseignement pratique	71	23	6
les activités parascolaires	11	41	48
mes rapports avec le personnel	43	36	21

trice ne pouvait que louer la dame où elle pensionnait parce qu'elle l'avait grandement aidée à prendre ses responsabilités et à organiser son emploi du temps. Trois autres ont fait mention d'un conférencier qui était venu s'adresser aux étudiants de l'école normale et qui les avait favorablement influencés quant à la façon de considérer leur profession. Et un jeune instituteur a dit qu'il avait beaucoup appris 'd'un voyage en Europe organisé par l'école normale de l'Université d'Ottawa à la fin de l'année.'

Appréciation rétrospective
Y avait-il des aspects du programme de l'éducation des maîtres, mal perçus par les normaliens au cours de leur formation, mais fort appréciés une fois engagés dans la profession? Ce fut à la demande d'un principal d'école normale que la question suivante fut ajoutée au questionnaire.

'Il y a des points, comme les suivants, auxquels j'accordais peu d'importance pendant mon école normale, *mais dont je reconnais aujourd'hui toute la valeur:* a) . . ., b) . . ., c) . . .'

Ce fut la seule question omise par plus d'un pour cent des sujets: quatre-vingt pour cent l'ont omise. Cependant, les instituteurs qui y ont répondu l'ont fait scrupuleusement, se servant même du verso de la feuille au besoin. Etant donné que les réponses étaient tout à fait subjectives, elles ne furent pas classées. Les trois réponses suivantes serviront d'exemples mais il faut ne pas en tirer des conclusions générales.

Une institutrice rappelle qu'à l'école normale, elle était complètement ennuyée par un professeur qui répétait à tort et à travers des recommandations sur le bon comportement de l'instituteur. Elle cite: 'Un instituteur ne doit jamais crier; il ne doit jamais être acerbe quand il punit un enfant; il doit écouter attentivement les explications de l'élève sur sa conduite; en tout temps, il doit être d'humeur égale et juste; s'il fait une erreur, il doit l'admettre avec honnêteté.' Cette même institutrice disait que toutes ces règles lui paraissaient si évidentes qu'elle se sentait ennuyée chaque fois que le professeur y revenait. Cependant, maintenant qu'elle se trouve au milieu d'un groupe d'enfants, elle réalise combien c'est difficile d'être toujours calme, raisonnable et d'humeur égale. Actuellement elle admet que chaque fois qu'elle se sent sur le point de perdre patience ou d'employer des mots blessants, l'avertissement du professeur de l'école normale lui revient spontanément et la plupart du temps elle réussit à se maîtriser.

Un jeune maître d'école se souvient que, durant son séjour à l'école normale, il employa sans ménagement le temps d'un des professeurs qui le conseillait sur ses études et ses problèmes personnels. Il n'a pas oublié que le professeur était toujours patient et encourageant. Maintenant qu'il a un groupe d'élèves, il réalise combien son temps est rongé par la préparation de ses leçons de classe, par ses corrections, etc., et sent qu'il a abusé du dévouement de ce professeur en l'obligeant à s'occuper, si souvent, d'un élève-maître. Les explications données par ce maître ont démontré qu'il avait apprécié les conseils et les avis reçus, même si pendant son année de formation il ne réalisait pas qu'il s'imposait à une personne très occupée.

Une autre rappela que durant son année d'école normale elle avait détesté un professeur parce qu'il se montrait trop exigeant par les travaux de son cours. Ce ne fut qu'une fois dans l'enseignement qu'elle réalisa combien elle avait appris de ses leçons et qu'elle en vint à apprécier la haute qualité exigée par ce professeur.

Suggestions pour améliorer l'éducation des maîtres
Ce groupe d'instituteurs franco-ontariens, recevant le questionnaire à la fin de leur deuxième année d'enseignement, avaient été priés d'apporter leurs suggestions pour l'amélioration de l'éducation des maîtres. Les voici.

A la quasi unanimité, on demanda de promouvoir encore plus l'enseignement pratique. Quelques-uns allèrent même jusqu'à dire que les futurs instituteurs ne devraient pas fréquenter l'école normale mais qu'ils devraient apprendre à enseigner en observant des maîtres compétents et en travaillant comme assistants. Ce que confirme la phrase suivante:

'Je voudrais vous dire que j'ai beaucoup plus appris dans ma classe avec un excellent directeur que j'ai appris pendant mes deux ans d'école normale. Sans rancune!'

Sans suggérer que les écoles normales soient abolies, d'autres croient que l'instituteur en herbe tirerait un plus grand profit en participant à toutes les activités d'un maître d'école – corriger les travaux des élèves, donner un coup de main en aidant les élèves plus lents, surveiller les récréations, planifier les projets d'étude, organiser des excursions avec les enfants, etc.[1] En plus, on suggère que l'école normale devrait avoir un pied-à-terre dans une école modèle. Ce devrait être une école élémentaire de type ordinaire pour les enfants, mais construite de telle façon qu'elle permette d'observer les élèves sans qu'ils le sachent.

La plupart des suggestions apportées sur les cours de psychologie éducationnelle ou de philosophie réclament un enseignement plus pratique. Plusieurs ont mentionné que ces cours seraient très utiles après avoir acquis quelque expérience dans l'enseignement. Par exemple, une institutrice a avoué qu'elle n'avait jamais posé de question à son professeur de psychologie durant son séjour à l'école normale, tout simplement parce qu'elle n'en sentait pas le besoin, mais que, maintenant qu'elle se trouve dans le tourbillon de l'enseignement depuis déjà deux ans, elle aurait des douzaines de questions à poser.

Environ dix pour cent des instituteurs voient la nécessité d'améliorer l'atmosphère française dans les écoles normales. Ils ont rappelé qu'aux écoles normales incombe la responsabilité de fournir aux écoles franco-ontariennes les instituteurs qui sont vraiment maîtres de leur langue maternelle, même s'ils en reconnaissent les difficultés pratiques. Quelques-uns ont manifesté leur surprise et leur déception à la vue de la déficience du français parlé parmi leurs collègues à l'école normale et aux écoles élémentaires françaises. Quelqu'un a suggéré que l'admission aux écoles normales devrait être refusée à celui qui n'a pas atteint un certain niveau de compétence en français parlé. Un instituteur a souhaité que des cours obligatoires fussent donnés durant l'été avant l'entrée à l'école normale, et que les candidats qui parlaient 'joual' devraient poursuivre ces cours plusieurs étés consécutifs jusqu'à ce qu'ils atteignent un niveau convenable d'élocution dans leur langue. Cette suggestion est illustrée par le conseil suivant:

'Il faut tâcher de ne pas envoyer aux écoles des enseignants faibles en français. A quoi servent des personnes qui ont de la difficulté à parler en français et qui, à la moindre chance, cassent les oreilles des élèves avec l'anglais? Quel exemple pour nos enfants!'

Ayant déjà fait remarquer qu'il y a un excédent d'instituteurs qualifiés dans les écoles élémentaires anglaises et que la même situation pourrait se répéter dans les écoles élémentaires françaises, plusieurs ont souhaité que les demandes d'admission dans les écoles normales comportent les mêmes exigences. Cependant, on reconnaît que la question n'est pas tant de renchérir sur les exigences académiques pour l'admission à l'école normale mais que avant tout c'est sur le choix judicieux des candidats, tenant compte de la valeur de leur personnalité, de leur préoccupation et de leur intérêt pour la cause de l'éducation des enfants franco-ontariens.

Note

[1] Il est intéressant de remarquer que, au cours de l'année académique 1970-71, les élèves-maîtres de l'Université d'Ottawa, qui se trouvaient dans leur deuxième année de formation ont travaillé de concert avec les instituteurs de l'école élémentaire Saint-Pie X du Conseil des Ecoles séparées d'Ottawa.

Of Many Things

Special Education — Some References

Recently, Mr. Brian Burnham, Research Coordinator, York County Board of Education, asked the chairman of the Department of Special Education, OISE, for assistance in identifying printed materials on special education. He wanted these materials for use in study sessions for trustees and professional staff who had little knowledge of that field. The following information, provided by Dr. H. Silverman, may be useful to other groups faced with a similar need.

Some Current Concerns in Special Education
The field of special education is fraught with a number of thoughtless assumptions, many of them hardly at all examined. They are usually made at a most profound level and, therefore, affect programs, selection procedures, training of teachers, and administrative structures. In the following areas of current concern, the articles and books referred to have been selected because they attempt to draw attention to some of these assumptions and to suggest ways in which they can be examined and their results called into question.

What is the nature of special education? How is it different from 'ordinary' education? Are there good reasons for special education to have an autonomous existence? Some answers to these questions may be found in the following publications.

Ahr, A. E., & Sims, H. D. *An evaluation model for special education.* Skokie, Illinois: Priority Innovations Inc., 1970.
Dunn, L. Special education for the mildly retarded – Is much of it justifiable? *Exceptional Children,* 1968, **35,** 5-22.
Jansen, M., et al. Is special education necessary: Can this program possibly be reduced? *Journal of Learning Disabilities,* 1970, **3** (9), 11-16.

In the last few years we have seen, especially in North America, a veritable rush to put children under the age of formal school entry into some sort of formal, or quasi-formal, institution, e.g., kindergartens, Montessori schools, preschools, play groups, and so on. Much of this has been headlong and unreflective, and the criteria for the selection of certain children rather than others are simply not clear. While it is becoming increasingly important for society to ask itself what, if anything, it needs to do for any of its children in any area, especially before formal school entry, the current fashion does not suggest that society is becoming more reflective. The following book is one useful source of ideas about children with special needs within the school setting.

Webb, L. *Children with special needs in the infant's school.* London: Fontana, 1967. (Ontario, W. Collins Sons)

Special education has been traditionally bedeviled by the problem of whether or not to place children in need of special education in segregated classes or schools or to keep them in the ordinary school setting. The problem has been stated as the integration versus segregation choice, and this in itself is a simplified way of putting the situation. There is always need to analyze in what circumstances, for what child, for what period, by what criteria, and with what arrangements for re-examination should an integrated or segregated program, or one reflecting features of both approaches, be set up? The following books and articles are useful additions to the debate.

Bruininks, R., & Rynders, N. Alternatives to special classes for educable mentally retarded. *Focus on Exceptional Children,* 1971, **3** (4), 1-12.
Grosenick, J. Integration of exceptional children into regular classes: Research and procedure. *Focus on Exceptional Children,* 1971, **3** (5), 1-8.
Safran, C. Integration and segregation in special education. *Special Education in Canada,* 1971, **45** (1), 37-43.
Siegel, E. *Special education in the regular classroom.* New York: John Day and Company, 1969.
Vaac, N. A study on emotionally disturbed children in regular and special classes. *Exceptional Children,* 1968, **35,** 195-204.

Teachers in special education are not properly trained to analyze children's difficulties in a manner sufficiently sophisticated to allow them to dispense with the bewildering array of 'experts' who predominate in special education and to undertake, direct, and decide for themselves on the requisite procedures for change in either teaching or handling. They have also been encouraged to believe that they cannot function at the classroom level without such experts and, thus, not to develop expertise in assessment in the broad sense. The two references below point to the sort of skills that the special education teacher can be expected to develop and that, if developed, would make him or her a more efficient and confident teacher.

Smith, R. M. (Ed.) *Teacher diagnosis of educational difficulties.* Columbus, Ohio: Charles E. Merrill, 1969.
Werry, J. S., & Quay, H. C. Observing the classroom behavior of elementary school children. *Exceptional Children,* 1969, **35** (6), 461-470.

The following articles are also recommended:

Adamson, G., & Nan Etten, G. Zero reject model revisited: A workable alternative. *Exceptional Children,* May 1972.
Deno, E. Special education as developmental capital. *Exceptional Children,* November 1970.
Lily, M. S. Special education: A teapot in a tempest. *Exceptional Children,* September 1970.
Lily, M. S. A training based model for special education. *Exceptional Children,* Summer 1971.
Nelson, C. C., & Schmidt, L. J. The question of the efficacy of special classes. *Exceptional Children,* January 1971.

An Audiovisual Survey of the Waterloo County Separate Schools

George Turzanski,
University of Waterloo

This article grew out of a survey designed to determine what audiovisual aids were available in the Waterloo County separate schools and to what extent and with what success they were being used.

Ninety-five percent of the survey questionnaires sent to principals were returned, giving coverage of thirty-eight schools and over thirteen thousand students. As might be expected, the amount of audiovisual equipment available varied greatly from school to school.

Survey findings showed that there is increased use of compact cassette tape recorders, 35mm slide projectors, language laboratories, and Super 8mm and 16mm projectors. As transistors become less costly and prices more stable, portable units are favored, especially for tape recorders. There is also a marked trend toward the combination of equipment – commercially known as multimedia. Tape-activated projectors are used in some schools and, in others, slides, tapes, and films are sometimes combined in a single presentation. At the separate school board's Educational Media Centre, video tape receives the most attention. The Centre controls the circulation of television cameras and video tape recording units in the schools. Survey findings revealed that many students produce their own video tape programs, and some teachers use the equipment for critical evaluation of their own teaching methods.

The use of filmstrip projectors and viewers, overhead projectors, and television receivers remains fairly static. There is a decrease, however, in the use of opaque projectors, reel-to-reel tape recorders, and radios. If money is available, television cassette playback machines may well become the most sought after pieces of equipment in the future.

Audiovisual aids were reported to be highly effective in all grades, with primary grades having a slight edge. The subjects in which they were used varied greatly, but emphasis fell on the following in the order shown: science, social studies, art, and music.

Survey returns indicated that teachers over thirty tend to favor the record player and the filmstrip projector and to dislike video tape. Younger teachers generally appear to prefer the new cassette tapes and slide projectors. Twenty-six principals admitted having on their staffs teachers who dislike using audiovisual aids. Their reasons are many and varied, ranging from a failure to see modern media as a valid teaching aid to a fear of mechanical equipment.

Sixteen principals felt that a teacher workshop on the effective use of media would increase its popularity. Twenty-one principals expressed satisfaction with educational television, nine found it unsatisfactory, and the remainder did not feel qualified to judge. Most schools, however, did not make use of the programs, largely because of bad timing. All of the principals favored spending more money on audiovisual aids but not all of the teachers agreed.

With the onslaught of electronic teaching aids, it appears that the teacher of the future will have to be a diagnostician, a prescriber, a facilitator, and a manager of information. Even now, the teacher's interpretation of political matters is overshadowed by radio and television commentators. His discussions of other cultures are dominated by the motion picture. His standards of music are obliterated by local disc jockeys. His readings of Shakespeare are rendered amateurish by the Stratford theatre professionals.

There are, of course, advantages to not using electronic media. The capacity for response remains greatest in the face-to-face situation. The teacher can assess his students and adapt his procedures accordingly. When he sees that students do not understand, he can clarify matters. If he finds a class becoming drowsy, he can rouse the students by raising his voice and emphasizing his gestures. In short, he can work with his students. He can not only send messages, but he can also receive them. No electronic teaching aid can equal his capacity to respond to a situation. At the same time, audiovisual equipment has robbed many teachers of their protective isolation, increased their competition, and challenged their competence in subject matter. Audiovisual equipment may not replace the teacher, but it is here to stay and if teachers are to remain fully effective, they must capitalize on media learning and bend in its direction.

Innovation

K. F. Prueter,
Office of Field Development, OISE

For the past five years, most of the print material that has reached my desk has spoken about innovation, innovative practices, strategies for innovation, and the like. Increasingly, I have grown to dislike the word 'innovation,' which, according to W. J. Gage's *Dictionary of Canadian English,* means 'a change made in the established way of doing things' and 'introduction of new things or of new ways of doing things.' The word is inadequate for describing what I think schools should be about unless I give the word meaning not found in any dictionary. No doubt some change is a good thing. Certainly, new things and new ways of doing things should be considered, but standards of attainment, not change, should, I think, be our concern. And improvement can frequently be achieved best by reinforcing the established ways in which our most successful teachers have long done things.

'Innovation' is not the correct word to describe how Ontario schools can maintain their standards amidst changing needs and conditions. The Hon. Alastair Gillespie, speaking to the Council of Science Ministers at OECD in Paris in 1971, said:

'We have a major responsibility to articulate what innovation is. It has been used as an abstract concept of ingenuity, it has been used to describe a system of resource utilization, it has been used to describe an extension of experimental development in the market place, it has been used to describe an attitude of mind.'

My difficulty is that I believe that ingenuity, resource utilization, experimental development, and an attitude of mind are all important and that the word 'innovation' does not necessarily connote any of these.

At least ten years ago, a series of community-based studies in New York State set out to identify the characteristics of 'good' schools. The study attempted first to define the objectives of public education – the outcomes most desired by community leaders, parents, teachers, and pupils. Then the study teams developed evaluation instruments to measure each of these objectives. These instruments were used in a large number of schools, and the data enabled the researchers to identify those schools that were achieving the objectives to the highest degree. These schools were called 'good' schools. Then the researchers went on to try to identify the characteristics of so-called 'good' schools. Interestingly enough, the only element they found common in the entire sample was that each of these schools was constantly trying to improve itself.

'There can be no progress . . . except in the individual and by the individual himself' (Charles Baudelaire).

And so I shall continue to resist incorporating the word 'innovation' into my educational vocabulary. Instead I shall look for individuals, schools and school systems, and communities that know what to do for children and youth and that are constantly striving to find the means best suited to the attainment of their goals. Such an effort requires a considerable investment of energy on the part of the school staff and the school system's administrators, and a willingness to give ingenuity a chance. In the process some hallowed traditions may be dropped – but others, equally important, will be retained and reemphasized. This is the only process I know that has the potential to produce 'good' schools.

Letter to the Editor

These days education is constantly raked by the media this way and that, and comment is frequently disparaging. I am convinced that this situation is unwarranted.

I am sure you will agree that the teacher is the keystone of the entire educational enterprise. His task is demanding. Throughout his professional lifetime he must always be searching for more effective approaches, better ways of doing things, and a fuller understanding of what happens in the teaching-learning process.

Many people believe that the teacher's life is one of ease and luxury, with a 9-to-4 working day and paid holidays galore. Obviously, they have little knowledge of the facts. Teachers can do much to correct this situation and to inspire public confidence in the educational system. Their starting point must be themselves, for people measure the teaching profession by the teachers they know. In this connection, may I suggest to my colleagues an exercise in self-examination?

What was your reason for becoming a teacher? Do you honestly care about people and seek to give service? Do you see the people with whom you are associated – colleagues and students – as individuals, and are you prepared to accept their individuality? Are you willing to spend the time and effort needed to get to know them personally? Do you make allowance for human fallibility and error? Do you accept worthwhile suggestions, whatever their source? Do you give credit where credit is due? Do you work toward a fair opportunity for all – teachers and students? Do you accept the responsibilities that fall on you? If you hold administrative responsibility, do you explain policy to and discuss plans with all persons concerned? Even if you disagree with policies or instructions from higher up, do you implement them without apology or excuse? When you make a mistake, can you admit it openly? Do your personal appearance and manner reflect favorably on your profession?

As teachers and principals, we know that we care about education. Let us see that the public knows it too.

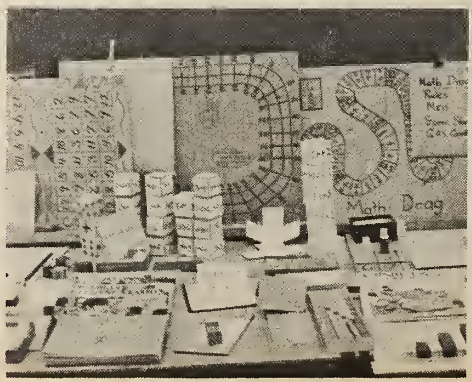
Yours truly,
Frank G. Faber,
Principal,
F. J. Rutland Senior Public School

Teachers' Centers in Lambton County, 1971/72

Madelon McKaig, Primary Consultant

The decision to establish teachers' centers in Lambton grew out of a number of experiences. As primary consultant for Lambton County, I have long shared an interest in British infant schools with Miss Mary Taylor, primary program consultant for Region 4 of the Ministry of Education. In 1970, we attended the Department's 'Childhood Education in Great Britain' summer course, visited and worked in schools, observed special seminars at the Froebel Institute, and learned of the important part that teachers' centers play in the professional development of British teachers.

In the following year, we arranged a number of workshops in Lambton County. Their focus was on materials for children progressing at various rates. Teachers who attended requested more time to examine materials, to make notes, and to construct devices that they found useful. Their interest underlined the need for teacher centers, and we began to make plans. Administrative approval was obtained, and we were given a small budget and permission to use certain vacant classrooms.



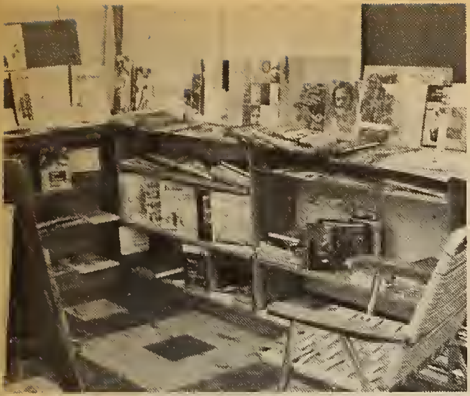
Mathematics aids at teachers' center

Lambton has a large geographic area and widely scattered schools. With a view to making the centers as convenient as possible, we divided the county into areas and had one center in each. Each center was in operation for three weeks and was open three days a week from 4:00 p.m. to 9:00 p.m. In all, there were six centers, which functioned at different times, beginning in October and ending in April. Primary teachers from one group of schools were free to come on three successive Mondays, from another group on Tuesdays, and so on. In addition, teachers were welcome to visit any center on any day that it was in operation. Attendance was entirely voluntary; records showed only the number of visits made each week. The centers were kept open for the five hours to meet the convenience of all users. An electric kettle and the ingredients for tea and coffee were provided. Visitors came and went; sometimes several people were present and sometimes only one or two. In order to ensure that adequate working space was always available, no more than twenty persons were scheduled for any day.

The principals of the schools in which the centers were held turned the rooms over to us with cupboards empty and furniture removed. Chalkboard ledges, bulletin boards, and ten borrowed stacking tables provided a display area along the sides of the room, and four tables with stacking chairs made a work area in the center. We bought two paper cutters and borrowed a variety of tools. Equipment was moved from school to school by Lambton County Board of Education trucks.

Consumable supplies included bristol board, colored felt, yarn and other sewing materials, cloth remnants given by a drapery department, wood scraps from the Board's carpentry shop, and some thin sheeting for making wooden manipulative materials. Old workbooks and readiness books provided pictures for language games. Stickers of all kinds, cubes for making dice to use with math games, scissors, felt pens, paste, and stationery materials were available.

Our display included a wide variety of games and devices that Miss Taylor and I had made and tested, as well as wooden manipulative material designed by Miss Taylor, which she helped teachers copy. Commercial materials included primary typewriters, sets of pictures, and filmstrip and record sets. Teachers could borrow these materials, checking them out and in as they did the reference books.



Reading corner at teachers' center

Each center had a library corner containing books from the primary reference library, journals on education, new textbooks of all kinds from the publishers, and a couple of comfortable lawn chairs so that teachers could sit and browse. This corner was popular, and more books on the teaching profession were borrowed this year than ever before.

We did not offer lectures or formal programs, but resource people were scheduled to visit and were available for consultation. I was present full time and was always ready to give help as requested. Miss Taylor came whenever possible and was available to help the teachers and to discuss their problems and ideas.

Reaction to the centers was interesting. Teachers found it hard to believe they were not going to be lectured, that the supplies had been provided for them, and that they could do what they chose and make what they wanted.

Not all primary teachers came, and some came only once to make notes and borrow material. However, many came repeatedly, worked long hours, and left with arms full of useful material constructed for their pupils. As one teacher remarked, 'It's great when the children say, "Did you really make these things for us, Mrs. S?" '

The friendly exchange of ideas as the teachers worked together proved very valuable and, because of the relaxed atmosphere, they were frequently able to discuss their problems in detail and find solutions. Particularly impressive was the way in which the teachers who visited the centers extended ideas and modified materials to meet the specific needs of their pupils.

Miss Taylor and I made a 'documentary' of slides showing the facilities available, teachers working at the centers, and children in school using the materials made there. This is used to explain the project to interested groups.

We believe that we have learned much from this year's experience. We now know that teachers benefit from opportunities to meet and work together on an informal basis. We believe, too, that teacher use of the centers must be entirely voluntary and that resource people must be prepared to listen to what teachers say they need and try to provide it. The centers must not become static. To be truly effective, they must constantly change and grow. The many centers in Great Britain grew from the same modest beginnings as those in Lambton County.

Unemployed!

Jim Newton,
Sunnyside Senior Public School

From beneath a thick blanket of sleep, Bill could hear his young son's cry. Struggling to free himself from the feather tick, Bill reached for the control panel that stood patiently beside his bed and pressed the 'child-care' button. Quiet returned immediately.

As his mind began to clear, Bill remembered that this might be the first NES day his school had experienced. Being the senior member on staff, he knew that he was secure. It was that young fellow, Gordon Judges, who would probably be the first to go. Beginning to feel depression settle into his mind, he pressed the 'elevate' button and placed his feet on the heated floor. Why worry when the cause for worry is in the future? Hoping that the automatic rocker would quiet his son until the sitter arrived, Bill proceeded to prepare for the day. He was fastening the last magnetic clasp on his shoes when the door tone sounded. As he pressed the button to admit the robot housekeeper, he thought, with a sense of shock, how vastly living and teaching had changed.

In the twentieth century, education and educating had been blindly valued as assets. Laws made school attendance compulsory and education had suited graduates for work. Then man began to automate existence. Books began to disappear as they were transferred to video tape. The teacher became a technician who coordinated incoming lessons on the telescreen, and was hard-pressed to master the many updating programs held at the board of education computer center. Then the trustees suggested the inevitable next step.

After greeting the robot and giving the day's assignment, Bill went to the computer, placed his ID card in the slot, and dialed for a courtesy bus. Within moments it arrived and he settled into its comfortable, vinyl seat, deep in thought. He recalled the impact upon teaching of that 'inevitable next step.' One day in the early twenty-first, as he was leaving school he noticed a group of students seated in front of the telescreen in a classroom that was usually empty. Behind the glass screen of the observation cell sat a group of trustees. Suddenly he knew what he was seeing, and his stomach had tightened and cold sweat had covered his hands and face. There, moving about the classroom, was a model 400.

His thoughts were interrupted by the soft voice of the computer. 'Sir, we've arrived.'
Bill left the bus and hurried to his room. Busy with the program for the day, he did not notice the principal come in.
'How are you today, Bill?' asked George Brundage.
Surprised by the interruption, Bill stuttered, 'Oh, hi George! How's the control center?'
'Just as automated as ever, Bill!'
'I'm glad we're close to retirement,' Bill muttered.
'Ditto on that one,' George quickly replied.
'By the way, George, is that young fellow, Judges, going to have to go?'
'That I don't know. We have barely enough students for the human-guided program. Remember, Bill, I'm just the principal, not the Ivory Tower.'
'Will we go NES soon?' Bill asked.
'Could have already happened.'
The soft tone of the computer sounded and George hurried back to the control center.

The kids began to file in, and Bill started the televiewer and began helping the students. During the seatwork time, he decided to pick up the day's mail. As he rounded the corner his mind returned to Judges. One small peek wouldn't hurt! Looking through the letters in his box, he could not find the bright orange computer card. At least Judges was safe for another day.

Quickly he emptied his own box and hurried back to his room. He had missed the beginning of the second program, and the class was in an uproar. Adjustments to the telescreen's sound coordination brought quiet, and he sat down to open his mail. With hardly a glance, he tossed the many computer advertisements into the garbage disposal unit at the end of his desk.

And then he saw the dreaded bright orange computer card. There had to be some mistake. But as his shaking fingers opened it, he read:

'Dear William Branson,
As you are aware, your school, Maple Street, has only marginal enrollment wishing human instruction. Due to this fact and your advanced age, . . .'

Tim Rowat,
Peterborough County Board of Education

etv on a shoestring

In September 1972 we moved into our first real television studio – at least, it's the closest we've been to the real thing in the four years since our inception. We began in an unused (large closet-size) room in a secondary school, moved to a vacant but more spacious classroom in a four-room elementary school, and now we're in the former library of the city's largest elementary school. It's still crowded – with desks, our first control room, and three sets – but it's functional, which makes us happy, and it's economical, which makes the board happy.

Wednesday – Video Taping – Day 1 – September '72

8.30 a.m.
Enter Producer/Director (PD) – Checks lighting, control console, VTR, audio mixer, switcher, intercom, mikes, audio tape recorder, and tapes. Mental State: Calm but still some summer cobwebs.

8.45 a.m.
Enter Graphics Artist (GA) – Adds final touches to special effect graphic, jeep, and palm tree – checks camera 1 – puts on water for coffee.

The Peterborough ETV facility is much smaller in terms of physical size, staff size, and financial investment than that of other boards which are similarly involved. Perhaps when you consider the comparatively small enrollment (20,000), as compared to that of the London or Ottawa boards, it might seem that such an undertaking, or educational frill, is ambitious and frivolous. The case is quite the opposite.

According to OISE's evaluation of the Ottawa IRTV experiment, *Educational Television on Demand*, the Ottawa Board of Education produced and distributed 2,000 minutes of new programs at a total cost of $444,750. In the school year 1971/72 we added 3,000 minutes of new programs to our library at somewhere between 10 and 15 percent of Ottawa's investment.

Our main reason for existence is to produce televised French lessons, to be broadcast throughout the county to all pupils of grades 4, 5, and 6. When the Peterborough Board of Education became the Peterborough County Board of Education, the decision to extend French language instruction to the entire county was made. Formerly, instruction in French had included only the city schools, from grades 4 to 8. Rather than double the complement of French teachers, the number of teachers would remain the same but their lessons would alternate every second day with a televised lesson. Thus, while extending French instruction to the entire county, the Board was equipping itself with an economical yet functional ETV production and distribution system and, in comparison to the cost of doubling the French staff, doing so at a considerable saving.

9.00 a.m.
Teacher/Writer/Performers (TWPs) – Check out their mikes – one checks scripts and props – other assembles graphics and sets graphics camera. Both light up and pour coffee.

9.15 a.m.
Duplication and Distribution (DD) – Arrives – bloodshot eyes (from switching late movie at local commercial TV station) – wearing tie to celebrate the new studio! (The office of the Director of Learning Resources is down the hall.) – Checks camera 2 – sets up a run of video tapes.

The television studio and duplication and distribution service are integral parts of the Board's Learning Resources Centre, and after four years we are finally housed in the same building as the administrative office, the library services, the technical services, and the film library.

Out of a total learning resources staff of thirteen people, four are responsible for all the technical and administrative aspects of production and distribution – equipment maintenance, design and execution of sets and graphics, directing, audio and video switching, camera work, duplication and distribution of video tapes, and off-air recording. Also, these people have occasional other duties involving the preparation and evaluation of other learning materials.

Included in the production team are two full-time teacher-writer-performers from the French department who write and perform all the programs in that series. Each teacher is responsible for one grade level. At the moment, one is taping and writing the grade 5 series and the other assists as camera operator and occasional performer. The latter's main responsibility is the preparation of the new grade 4 series, which is to begin taping in April.

As of September '72, every ETV production has had two secondary school students acting as 'production assistants.' They are taught and then used in many jobs and they are encouraged to generate their own ideas and their own productions.

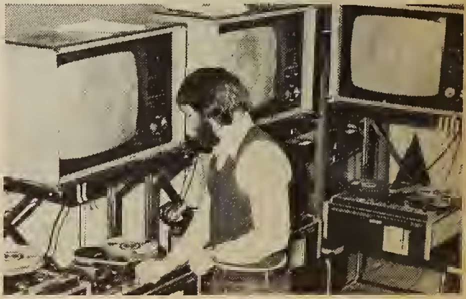
Last year, out of fifty hours of production, thirty hours were devoted to French instructional television, *Téléfran;* the remainder were devoted to a speech series, *Talk Shop,* for kindergarten and grade 1, and to stories and language activities, *Sundrops and Rainbeams,* for primary and junior grades. Some social studies programs were prepared for the secondary schools as well as a number of productions prepared and performed by the students themselves.

In addition to the participants already mentioned are consultants and resource teachers on flexible schedules, students, volunteers, and classroom teachers who come in after class.

9.30 a.m.
Rehearsal – taped to check system for bugs – disaster!

9.55 a.m.
Playback of tape – looks like it was recorded on sand paper – PD calls for technician – scratch one VTR – replacement VTR. Mental State: Tense.

Adjacent to the ETV studio is the duplication and distribution service for video



Video tape duplication and distribution

tapes. Here, the master tapes produced in the studio are copied onto six 'slave' machines – three three-quarter-inch cassette machines and three one-inch reel-to-reel machines. Along with films, books, filmstrips, general supplies, and so on, these video tapes are distributed by courier to the sixteen county schools that are equipped with television receivers and a video tape playback unit.

The remaining thirty-five elementary schools are attached to the community cable TV system. Our tapes are played by their personnel from their facility over their community broadcasting channel on one of our machines at no cost to the Board.

Since we have two distribution systems operating simultaneously, we are in a position to determine the advantages of the two methods. A detailed comparison of the two would make up another article, but having the teachers operate the video tape recorder allows for maximum flexibility of timetabling and for replay of all or portions of the program.

The cable distribution, of course, is very rigid, but the broadcast times were selected by the majority of the schools. The prime advantage here is the greatly reduced cost, since one video tape playback unit services all the city schools. Each program in the French series is repeated once. Others are repeated up to four times.

10.30 a.m.
Taped Rehearsal No. 2 – much smoother – looks like a take.

10.50 a.m.
Playback – picture has a pronounced twitch, audio sounds like a recording on an elastic band – PD hollers for technician – scratch one more VTR – two down, one to go.

In spite of budget ceilings, minimal staffing, and the other limitations that plague the wishful thinkers of learning technology, we feel the only way that we in ETV can function is in creative competition with entertainment. Whatever we produce for showing in the classroom must be influenced by what the child watches at home. The message we want to get across must be presented in a technical package sophisticated enough to attract and interest the child.

I think the success of such programs as *Sesame Street* and the *Electric Company* have shown us ways to make even the dullest forms of drill and rote learning interesting and enjoyable. Of course, there is no way our type of operation can approach their level of sophistication, but we have learned to make maximum use of sets and special effects and have emphasized the need for the people on camera to be performers as well as teachers.

11.00 a.m.
Check of VTR No. 3 – quick prayer to Marshall McLuhan – O.K.! – sighs all 'round.

11.10 a.m.
Coffee break – final check.

11.20 a.m.
Taping – extreme care – good! Mental State: Very tense.

11.40 a.m.
Playback, Program No. 16 – No problems.

12.10 p.m.
Lunch – one program behind schedule.

Our existence, as I have already suggested, is always a compromise between our ideas and the realities of the situation. That is the challenge. We are a small group in a small space, with limited funds. Our equipment is the least expensive available. Our studio sets are all portable and modular and can be moved about, set up, and dismantled by one or two people. We try to make all sets do for one year's taping, with slight variations for each series and a rule that we produce only one series at one level per year.

All scripts have a modular format. This eases the job of the script writer, and makes it easier for the performer, who may have only a half-day to rehearse and tape two twenty-minute shows. The rigidity of the format and the amount of variation within each program segment depends on the production and the other commitments of the script writer. In the case of the French programs, the format repeats itself every five shows, every two weeks. In the case of the speech program, the format is generally the same in every show, but one program is broadcast every two weeks.

Each member of the production staff performs several functions. The graphics artist is a camera operator, a set designer and painter, and is the back-up person for duplication and distribution. The producer/director is audio and video switcher, set builder, announcer, and sometimes performer. The teacher/writer/performers also operate cameras, puppets, and graphics.

Teacher/writer/performer with puppet

The advantage of this type of highly integrated arrangement, with each member having an understanding of the other members' function and the ability to contribute informed ideas, makes each individual's role that much easier and the end product that much better.

1.00 p.m.
Rehearsal – Program No. 17 – looks good.

1.20 p.m.
Adjustment of lights.

1.25 p.m.
Taping – Program No. 17 – network graphic – theme – info graphic – title graphic – cue talent – Take 1 – Take . . .

1.30 p.m.
Fire Alarm! Fire Drill! – thunder of 1,000 pairs of K to 8 feet on the stairs – cameramen in hysterics – PD storms out of control room in search of principal – heard muttering, 'Agreed . . . no damned surprises!'

1.40 p.m.
PD returns – some semblance of self-control – pupil pulled alarm.

The use of ETV in a small system such as ours is justified by economics. It is not a frill, it is a feasible answer to a specific educational need. We have our problems and our critics, but dollars and cents is not a major one. Of necessity, we have to be innovative in production and pedagogy. We are trying to condition students to accept television as an active rather than a passive medium – to carry on a three-way dialogue between the television, the pupil, and the classroom teacher.

In small centers such as ours, various other institutions are making inroads into ETV (community colleges, universities, separate schools). It would seem that through cost sharing and an integration of personnel, television education, production, and distribution could become highly sophisticated at a modest cost. ETV facilities might be set up as smaller satellites of the provincial ETV network, OECA, thereby accommodating local, specific needs in the area of instructional television and funnelling in the broader spectrum of OECA programming.

2.55 p.m.
Taping successfully and finally completed – enter Chief Custodian, 'can't find the alarm switch that was pulled' – looks at ceiling – 'Say, that spotlight is awfully close to that heat sensor' – PD, 'What heat sensor?'

Teacher Evaluation: Current Practices and Future Directions

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The evaluation of teachers is one of the many responsibilities of Ontario boards of education that are being affected by changes currently taking place in the province. Shifting philosophies of education, limitations on expenditures, and growing demands for accountability are making it necessary to reconsider current practices in order to develop plans for the future. It is the intention of this article to review the findings of a survey of the purposes, methods, and criteria of present-day teacher evaluation and to consider the problems that evaluators will face in the near future.

The Survey

The survey, carried out by the Department of Educational Administration at OISE, focused on a number of specific facets of the evaluation process in Ontario to obtain a clear conception of current policies and, by inference, current practices. A multiple choice questionnaire was used to determine the purposes of evaluation, those responsible for evaluation, frequency of observation, duration of observation, the extent of pre- and post-consultation, the treatment of evaluation reports vis-à-vis the teacher, and the circumstances under which a principal must submit written reports on teachers to the superintendent. Furthermore, we requested that boards supply a sample copy of their official evaluation form so that we could find out what teacher characteristics and behaviors were actually being evaluated.

Three fundamental assumptions underlay the questionnaire: that all school boards in Ontario would have policies relating to the seven areas of concern outlined in the questionnaire, that a board's chief executive officer or his designate would be able to provide accurate answers, and that teachers were being evaluated by their superiors rather than by their fellow teachers or their students. Provision was made for comments in case these assumptions were not valid, but the absence of such comments suggests that they were.

Questionnaires were mailed to all of Ontario's 126 public school boards in May 1972. Of this total, 88 boards (70%) returned the questionnaires and 54 (43% of the 126 boards) enclosed a sample evaluation form. Of the individuals who completed the questionnaires, 38% were chief executive officers, 1% assistant chief executive officers, 40% functional superintendents, 12% area superintendents, and 9% either secretaries to the board or supervisory principals. Hence, one can be confident that knowledgeable persons provided the following information.

Purposes of Evaluation: Respondents were asked to rate eleven purposes of evaluation as 'most important,' 'very important,' or 'important' in their systems. These purposes, listed in rank order of number of boards designating them as 'most important,' follow: 1) to stimulate improvement of the teacher's classroom performance, 2) to assist the teacher in identifying those areas needing improvement, 3) to assess the effectiveness of the educational program, 4) to improve pupil achievement, 5) to establish evidence where dismissal from service is an issue, 6) to improve the curriculum, 7) to recommend probationary teachers for permanent status, 8) to identify in-service needs, 9) to select teachers for promotion, 10) to establish qualification for merit pay, 11) to qualify teachers for regular salary increments.

This evidence strongly suggests that present evaluation policies place a major emphasis on the teacher's behavior and only secondary emphasis on such educational objectives as student achievement. Administrative concerns relating to teacher selection, such as the recommendation of probationary teachers for permanent status, also appear to be of secondary importance, although this conclusion is somewhat contradicted by other data revealing that only probationary teachers are evaluated regularly. Of least importance is evaluation for deciding on rewards, promotions, merit pay, and salary increments; presumably, other types of criteria are used in reaching these decisions. In general, then, the primary purpose of evaluation, as stated in the current policies of most boards, is to increase teacher effectiveness.

Responsibility for Evaluation: With most Ontario boards, the responsibility for evaluation of teachers rests with the superintendents and principals, although a few respondents did indicate that department heads, vice-principals, and teachers share that responsibility.

Frequency of Observation: Board policy generally requires superintendents to observe probationary teachers at least twice a year. The boards responding to our questionnaire showed their frequency of observation by superintendents to be as follows: no observation – 1%, once a year – 27%, twice a year – 37%, more than twice a year – 9%, and 'as the need arises' – 26%. The frequency of observation required of principals was: no observation – 2%, once a year – 11%, twice a year – 26%, more than twice a year – 24%, and 'as the need arises' – 37%. For department heads, over 70% of the boards stated that observation was required only 'as the need arises.'

Observation of tenured teachers is far less systematic than that of probationary teachers; two-thirds of the boards require evaluation only 'as the need arises.' This response appears to contradict the reported 'most important' purpose of evaluation – to assist teachers to improve – and suggests that the real purpose is to provide a basis for dismissing or granting permanent status to probationary teachers. Perhaps experience has indicated that the need for guidance among probationary teachers is universal. But it does not follow that all tenured teachers achieve their best; they too would probably profit from systematic evaluation and assistance.

Duration of Observation: The required duration of observation varies with the position of the evaluator. In general, superintendents are expected to observe for more than one hour, and principals and department heads are expected to spend from forty to sixty minutes.

Pre- and Post-Consultation: Pre-observation consultations by superintendents are most commonly required with principals (74%), but department heads (36%) and teachers (28%) can be included. For all boards responding, the superintendent is required to hold post-evaluation conferences with both principals and teachers, and for half the boards, he is also required to hold them with department heads. Post-evaluation consultations between the principal and the teacher being evaluated are required by 69% of the boards, and written comments indicate that this practice is often followed even when not demanded by policy. Again, department heads play a minor role, with only 36% being required to consult with teachers after evaluation.

Treatment of Reports: Written reports on the teacher's performance are treated in a number of ways vis-à-vis the teacher.

For 52% of the boards, it is policy for the teacher to sign and retain a copy; for 18%, the teacher must sign it but does not retain a copy; for 21%, the teacher sees the report but neither signs nor retains a copy; for 6%, the report is shown to the teacher only on request; and for 3%, it is shown only if the teacher's performance is unsatisfactory. It would appear that a board following the first and most popular policy is in the most favorable position should it decide to dismiss a teacher who has been judged unsatisfactory.

Submission of Reports to the Superintendent: Evaluation reports on probationary teachers must be submitted by principals to the superintendent for 53% of the responding boards. For tenured teachers and for boards without this policy, it is usual for principals to submit them on request.

Criteria for Evaluation

Analysis of the criteria listed on sample evaluation forms reveal eleven categories which, in order of their frequency of use, are: teacher–pupil relations, techniques of instruction, planning and preparation, classroom control, subject competency, teacher–staff relations, personal characteristics, professional growth, contribution to total school effort, teacher–parent relations, and curriculum development.

As would be expected in view of the stated 'most important' purposes of evaluation, these items concentrate on the teacher's classroom activities. The apparent fact that evaluation is applied to probationary rather than tenured teachers is also reflected in the lack of emphasis on evaluation of those characteristics one might expect from veteran teachers, such as professional growth and ability to develop curricula. All criteria tend to be general in nature, providing the evaluator considerable room for interpretation as to what type of behavior is to be considered excellent, very good, good, fair, or unsatisfactory, these classifications making up the rating scale most commonly used.

Finally, it is apparent that evaluation forms rarely indicate any link between the teacher's behavior – his techniques of instruction, his planning, and so on – and the expected student behavior. There does seem to be an unstated assumption that all types of behavior being evaluated are desirable and, hence, have a positive effect on the student. This assumption, however, may soon be invalid, if it is not already, in view of the increasing diversity among the schools. The lack of systematic procedures for evaluating differing modes of behavior, combined with the vague descriptions of the criteria for evaluation and the exclusive focus on probationary teachers, constitute weaknesses in present evaluation policies that must be remedied if evaluation programs are to respond to changes in the educational system. In addition, there is a practical problem which, in the foreseeable future, will be a weakness in any system of teacher evaluation.

Implications of Change

It is all well and good to state that the primary purpose of evaluation is to improve teacher effectiveness, but what proof is there that this goal can actually be achieved? Is it possible to prove scientifically that one teacher is more effective than another? Surprisingly, the answer is no. Valid scientific proof requires more evidence than researchers have been able to muster to support the contention that certain teacher characteristics or modes of behavior, such as higher academic achievement or social awareness, consistently relate to specific changes in student behavior. The lack of evidence concerning the relation between a student's performance and his educational environment extends to the school and board levels; such factors as class size, number of library books, and per pupil expenditure appear to have no predictable effect on the student.

The lack of scientifically valid – as opposed to socially acceptable – criteria for distinguishing more effective teachers from less effective teachers has one major consequence: all systems of teacher evaluation are based on unproven assumptions rather than on proven facts. In the past, the assumptions on which the typical teacher evaluation program in Ontario were based – e.g., organization, clarity, and so on – have not been questioned. However, two recent changes in the province, one involving the purposes of education and the other focusing on the efficiency of educational systems, make many of the assumptions underlying current evaluation programs appear untenable. A new system will have to be created and, without empirically tested results to guide the way, educators must depend on their ability to deduce logically defensible criteria from stated educational objectives and to develop criteria that are acceptable to both themselves and the public.

Aims and Objectives of Education

The first difficult problem faced by school boards in planning a program of evaluation is to determine the educational objectives against which teacher effectiveness is to be judged. The current conflict over objectives centers on the relative importance to students of academic learning and social development. One extreme is represented by those organizing socially oriented, unstructured, 'free' schools, which emphasize spontaneity and individual choice, and the other is represented by those organizing academically oriented, 'traditional' schools, which emphasize the four *r*'s – reading, 'riting, 'rithmetic, and respect. Obviously, the philosophies and objectives of the two types of schools differ, and they require teachers who teach in different ways. The landmark report on the aims and objectives of education in Ontario, *Living and Learning*, clearly emphasizes social development, but many individuals disagree with this emphasis.

An excellent example of a behavior that may have different significance in schools with different philosophies is the teacher's 'classroom control.' Traditionally, complete control was considered a virtue, the hallmark of a good teacher. But in a free school, complete control is regarded as inhibiting to the child's spontaneity and is therefore to be avoided.

Current evaluation forms rarely give sufficient guidance to the evaluator as to the specific types of behavior to be rated, nor do they indicate whether the behavior is to be considered good or bad, i.e., whether it is positively or negatively related to the attainment of educational objectives. To evaluate a teacher's classroom control, an evaluator is forced to create a mental picture of the extent to which controlled student activities are appropriate in a given situation and to compare the teacher's behavior with this mental standard. As long as the evaluator is experienced, accurately represents the community's educational philosophy, and has a vivid imagination, this highly subjective approach is adequate. However, given the conflict over philosophies and objectives existing within many boards and schools, it appears that future evaluation programs must state the educational objectives to be attained, name the teacher characteristics to be rated, and provide an adequate rationale that logically relates one to the other. Without this information, the evaluator may make judgments that will be criticized by members of the board, the teaching profession, and the public, whose mental images of the effective teacher do not correspond to his own.

Control of Educational Costs

While Ontario's boards focus on an unlimited number of educational objectives, they must also deal with increasingly restrictive expenditure ceilings imposed by the provincial government. These financial limitations have been translated into a reduction in the total number of teachers and an increase in the average class size – changes which, it is hoped, will increase education's efficiency without impairing its effectiveness. There is a strong feeling among teachers that this hope is futile, that the changes will create hardships which will reduce teacher effectiveness and make it impossible to maintain quality education. It appears imperative that future teacher evaluation programs broaden their purpose to include the assessment of teacher efficiency as well as teacher effectiveness.

Methods of measuring teacher efficiency are no more certain than those for measuring teacher effectiveness, but the objective of the former is more definite – to cut educational costs. Baseline data need to be collected to determine the actual workload of teachers in terms of some standard measure (e.g., student-contact hours) and to learn how materials and facilities are actually being used. Then viable standards can be set which will eliminate wasteful behavior and allow teachers to be evaluated according to economic as well as education standards. In the absence of an evaluation program that successfully addresses the problem of educational costs, much of the public will remain convinced that teachers, with their six-hour day and ten-month year, simply do not work hard enough.

The Politics of Evaluation

Doubts about the direction and costs of education and the workload of teachers have combined to create a demand for a rigorous, systematic evaluation of all teachers. In Ontario, this demand has not yet crystallized to the same extent that it has in the United States, where a number of states have enacted laws, sometimes without consulting the educational profession, to accomplish this purpose. In Connecticut, teachers, directors, and boards of education have joined together to oppose a revision in the state's teacher certification program, ordered by the legislature, which specifies procedures for judging on-the-job performance of teachers, principals, and directors by committees of educationists and community members. The guidelines are seen as a threat to universities because degrees will not be required, to tenured teachers because performance will be the basis for employment, and to boards of education because their control will be weakened. Ironically, the evaluation system, which was enacted without being tested, will probably cost the ratepayers an additional $12 million to finance, mostly to pay supply teachers to fill in for teachers serving on evaluation committees. The moral of the story is clear: if boards, in cooperation with their employees, do not develop and implement programs of evaluation that address the public doubts about educational objectives, costs, and effectiveness, then a system will be imposed on them.

BLUEPRINT FOR A LEARNING SOCIETY

Based on a Press Release from UNESCO

If an international commission which has just reported to UNESCO is right, education throughout the world is likely to change beyond recognition in the next generation.

To begin with, the process will start much earlier as the importance of pre-school education is more widely recognized; then, it will never end, for the signs are that the concept of lifelong education, already an ideal, is about to become a practical reality. Examinations, the bane of every student's existence, may wither away, for they will be meaningless to people who are learning at their own pace. Fixed subjects and curricula are likely to go into the melting pot, and schools as places exclusively for children, are threatened with extinction.

Above all, the spirit and aims of education will change; the emphasis will be on learning, not teaching, and the end products will be measured not in terms of so much knowledge dispensed but of so many completely developed human beings. Inside and out, education will become democratic.

How likely is all this to happen? The Commission was called on to make proposals that would help governments work out strategies to meet their own educational situations, but decisions on these strategies can only be taken at the national level. The report and its recommendations have still to be examined by this year's General Conference of UNESCO's Member States. There are many stumbling blocks, ranging from economics to sheer inertia, to overcome.

At the same time the Commission has been able to draw on educational experience throughout the world; it has benefited from approximately seventy-five specially prepared expert reports and has visited twenty-four countries to examine conditions at firsthand. Furthermore, the composition of the seven-man Commission – with members from France, Syria, the People's Republic of Congo, the Soviet Union, Chile, Iran, and the United States – makes the fact that they were able to reach wide agreement remarkable.

For the ordinary reader, two things in the Commission's report are particularly striking: its understanding, and even acceptance, of the reasons for youth's rebellion against present-day education;

and its belief that lifelong education is not just a theory but already a fact and one that education systems should take into account to help people cope in a changing world – a world in which the quantity of knowledge increases faster than individuals can keep pace with and in which, in some countries, half the working population have jobs that did not exist at the beginning of this century.

Striking, too, is the Commission's analysis of what education has been and is now – in other words, its diagnosis of what is wrong with it. In the Commission's view, man is a learning animal. Learning is both natural and necessary to him, but the educational systems he has set up, whether they be modern American or European, Hindu, Islamic, classical, mediaeval, or postindustrial, have all had a tendency to end up as straitjackets. Why? Because the traditions established and passed on became dead weights; because school became an institution instead of an approach to life; because there was too much emphasis on the written word, too much subject division, too much authoritarianism – in a word, too much school and not enough learning.

The present situation, the Commission finds, is paradoxical. On the one hand, there has never been so much demand for education (between 1960 and 1968, the total number of school-age children in the world increased by 20 percent). On the other, there has never been so much dissatisfaction with, and rejection of, education by the young. Never before has so much education been provided (nearly 650 million persons are currently enrolled in educational institutions throughout the world), but never has society so widely rejected the product of institutionalized education – as the increased rate of unemployed educated people in many countries goes to show.

Behind these apparent contradictions lies the accelerated pace of modern life, which tends to accentuate the gaps that normally exist between structures, infrastructures, and superstructures. Educational systems set up to cater to a minority, to pass on mainly middle class values, and to deal with a known quantum of knowledge cannot cope with a majority. They fail to impress on students values that they see being denied in daily life and that are being outstripped by the constant expansion of human knowledge, particularly in scientific fields. Hence the *événements* of France and other countries in 1968, the high dropout rate in Africa, the unemployed graduates of Asia.

What, then, is to be done about the situation? The Commission does not lay ground rules for the educational systems of the world. It recognizes that cultural backgrounds vary widely from country to country and that each country must decide for itself what kind of education it wants. But it does offer guidelines and, from its considerations of possible strategies, some watchwords for educational reform have emerged. Among these are democracy, continuity, and flexibility.

According to the Commission, these trends are already prevalent in many countries. There are no counter-movements, particularly as regards the trend toward flinging the gates of educational opportunity open to all instead of working for a self-perpetuating élite. It is this movement that has caused industrialized countries to increase their educational spending and developing countries to set aside 20 percent or more of their national budgets for education.

The move toward democracy in schooling has several causes, including the general demand for qualified labor to meet the needs of stepped-up technology. In some countries, ideology is behind the move; in others, the consequences of decolonization. In some cases, the spur is fear of social unrest. But the report points out that there is a wide gap between the decision, on principle, to provide universal education and the democratization of the systems, for, as they are currently structured, inequality is built into them. 'The universal right to education, in which contemporary civilization takes such premature pride,' says the Commission, 'is often refused to the most underprivileged.'

This happens because schools are often located in city centers, remote from rural populations or even the inhabitants of poor suburbs. It also happens because some groups are disadvantaged, and the Commission refers to the President's Commission on Campus Unrest in the United States, which shows the discrepancies between the proportion of black and white students completing the various grades in school. In any case, the Commission's report insists, equality of access is not the same as equality of opportunity, which must include an equal chance of success.

Nutrition, family background, and such factors as housing all play a role in success at school. Even in some socialist countries, children of executives tend to get higher school ratings than children of laborers – throughout the world, the disparities between social classes are even more strikingly reflected in university enrollments.

Merely multiplying schools is not the answer, and the Commission rejects the 'reassuring ideology' of merit as the sole criterion. What is needed is not equal treatment for everybody but provision for each *individual* of a suitable education at a suitable pace for his particular needs. This approach has always been a theoretical possibility but a practical rarity; today, however, the advance of such educational techniques as programmed learning has made it much more realizable.

Abandoning the élitist conception of education means many things, including rethinking the examination system for, according to the Commission: 'There is little evidence that selection procedures are capable of predicting adequately whether an individual has the aptitudes required for a particular career. . . . While the marking system does, in general, enable an individual's achievement to be compared with that of his peers, it rarely considers his progress in relation to his own starting level.'

Real solutions to the problems of inequality can only be found in a sweeping reorganization along the lines of permanent, lifelong education – in other words, continuity, the second watchword of the future. 'Once education becomes continual, ideas as to what constitutes success and failure will change. An individual who fails at a given age and level in the course of his educational career will have other opportunities. He will no longer be relegated for life to the ghetto of his own failure.'

The idea of lifelong education is not a new one but has been urged by educationists for some years. To the members of the Commission, this is an observable fact: 'Human beings, consciously or not, keep on learning and training themselves throughout their lives, above all, through the influence of their environment.'

Recognition of this fact should bring revolutionary consequences – not the extension of school by evening classes but the integration of child and adult education, and not the occasional use of television to supply what schooling lacks but wholehearted employment of the media, which already teach as much as and more than lessons do. Education 'first helps the child to live his own life as he deserves to do but its essential mission is to prepare the future adult for various forms of autonomy and self-learning.' Schools, insofar as they continue to exist as we now know them, cease, under this system, to be reserved for children and become places of learning for future and present adults. Students cease to regard learning as the acquisition of a certain quantity of knowledge within a certain time, and teachers cease to be timekeepers and progress chasers and become channels through which students can get at the knowledge they need.

Flexibility, the third characteristic of the education of the future, is obviously necessary if lifelong education is to work. As the divisions between subjects are eroded by advances in knowledge, curricula will have to change to meet specific needs – adults who want to turn, say, to radio engineering will not necessarily have the time to plough through the whole syllabus of heat and light before they come to sound.

In any case, says the report, flexibility is required by modern conditions. 'At the rate technology is advancing, many people during the course of their working life will hold several jobs or frequently change their place of work. . . . Education rarely equips the individual for adapting to change, to the unknown. The world has not yet widely accepted the principle of a general polytechnical education at the secondary level – an education which would guarantee professional mobility and lead to lifelong education.' Yet such an education has given positive results where it has been tried – in the United States, in the Federal Republic of Germany, and in most of the socialist countries.

Consideration of new techniques occupies a substantial portion of the report, for while the faulty functioning of education makes reform necessary, it is the existence of these new techniques that makes reform possible. These techniques make up a whole arsenal of social, technical, cultural, and structural innovations that could profoundly change educational systems.

Contributions from physiology, psychology, linguistics, anthropology, communication theory, and cybernetics have all helped to shed light on learning. For instance, it is now known that the human brain has a large unused capacity – perhaps as much as 90 percent. Research into cell formation shows that protein undernourishment in babies between five and ten months old can permanently handicap them. Therefore, nutritional measures are, for some countries, the first steps to boosting intellectual performance. Also, Soviet researchers have worked out a strategy for tracing the cognitive process, which has resulted in a trend in which students, instead of being invited to think about what they are taught, are, in some measure, shown how to think.

For the first time since the textbook, the exercise book, and the blackboard were invented, the 'hardware' of the teaching trade has been substantially increased by a battery of mechanical supports, including audiovisual aids, video cassettes, closed-circuit TV, and computers. Mass communication technology has moved simultaneously in two opposite directions: toward individualization of education (as in programmed learning) and toward mass distribution (as in educational TV programs by satellite transmission). Successful use of this technology is already being made in Tellekolleg in West Germany, the radio schools in Japan, and the Open University in Britain. The focus of all the innovations of the last ten years is significant – on self-education and on learning, not teaching.

Every educational act is part of a process directed toward a goal, says the report, which sets out clearly the ends the Commission members see for educational reform: 'The search for a new educational order is based on scientific and technological training, one of the essential components of scientific humanism [which] rejects any preconceived, subjective or abstract idea of man [and] is concerned with a concrete being, set in a historical context, in a set period. He depends upon objective knowledge . . . which is . . . directed towards action and primarily in the service of man himself.'

Education must develop the scientific spirit of this concrete being because he lives in a world steeped in science, whether he is an automated factory worker or an Indian peasant caught up in the green revolution. Education needs to cultivate his creativity because stifling it is the cause of much of youth's malaise. Education must prepare man to be socially committed, democratic, and internationally minded because this is one guarantee of peace. Man must be able to wonder, to doubt, to appreciate beauty, to master his own body. 'The physical, intellectual, emotional and ethical integration of the individual into a complete man,' says the report, 'is a broad definition of the fundamental aims of education.'

If education spreads to include all facets of life, then it follows that the school 'will be less and less in a position to claim the educational functions in society as its special prerogative. All sectors – public administration, industry, communications, transport – must take part in promoting education. Local and national communities are in themselves eminently educative institutions.' In the Commission's view, the trend must be toward the 'learning society.'

How this learning society might be achieved makes up the last part of this closely packed report, the part that the UNESCO states that called for it will closely examine for ideas which they might follow. Much of this section is highly technical, and some of it is probably controversial. But many ideas of universal validity emerge.

Among these ideas is the view that education can be developed in a rational way only through a three-stage process involving formulating a policy, working out a strategy, and proceeding to a plan. Equally cogent are: the plea for thoroughgoing reform rather than halfhearted tinkering with particular aspects; the argument for more international aid for education; and the idea that strategies for the purely linear expansion of education cannot be justified, either by results or by the methods used.

The report contains twenty-one recommendations on the directions of tomorrow's educational strategies, which provide plenty of material for thought and argument. Consider, for example, the recommendation that 'artificial or outmoded barriers between different educational disciplines, courses and levels and between formal and nonformal education should be abolished: recurrent education should gradually be introduced, first being made available to certain categories of the active population.' This implies that individuals should be able to leave and rejoin the educational system as it suits them, which would also oblige employers to allow workers to be absent for study. In Ceylon a recurrent educational system has been envisaged in which only a few end-of-study certificate holders would go on to immediate preliminary university studies; the majority would have the right to request admission after two or three years and be admitted, not on the certificate, but on the results of aptitude tests.

The value of the recommendation that the development of preschool education be a major objective in the 1970s is backed by examples as varied as the kindergartens of the People's Republic of China, the educational television program *Sesame Street* in the United States, and the village day-care centers in Senegal. Even the apparently Utopian recommendation that examinations be used for self-assessment rather than for judgment by external standards is encouraged by the fact that Sweden has abolished school-leaving examinations and requires no written or oral testing for university entrance.

Who knows how many of the Commission's ideas will be translated into practice? But even if it is only a few, the next decade should be an exciting time for young and old alike.

Note: The report is published in English (Harrap, London) and French (Fayard, Paris) under the title *Learning to Be*.

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OISE

MATHEMATICS EVALUATION FOR THE JUNIOR GRADES

MEMP stands for Mathematics Evaluation Materials Package. The MEMP project was initiated in 1970 by OISE in collaboration with several mathematics consultants and teachers. The materials consist of a set of objectives and companion test items for mathematics in grades 4 to 6. They have been developed for use in a setting that emphasizes flexible curricular guidelines, such as P1, J1 of the Ministry of Education, and increased participation of teachers and principals in curriculum development. The purpose of the materials is to help those developing their own mathematics curricula (or even those working with existing curricula) by providing them with a pool of objectives and test items from which they can choose those that meet their needs. In other words, the local decision maker is free to select a pattern of objectives for his school, classroom, or even individual students.

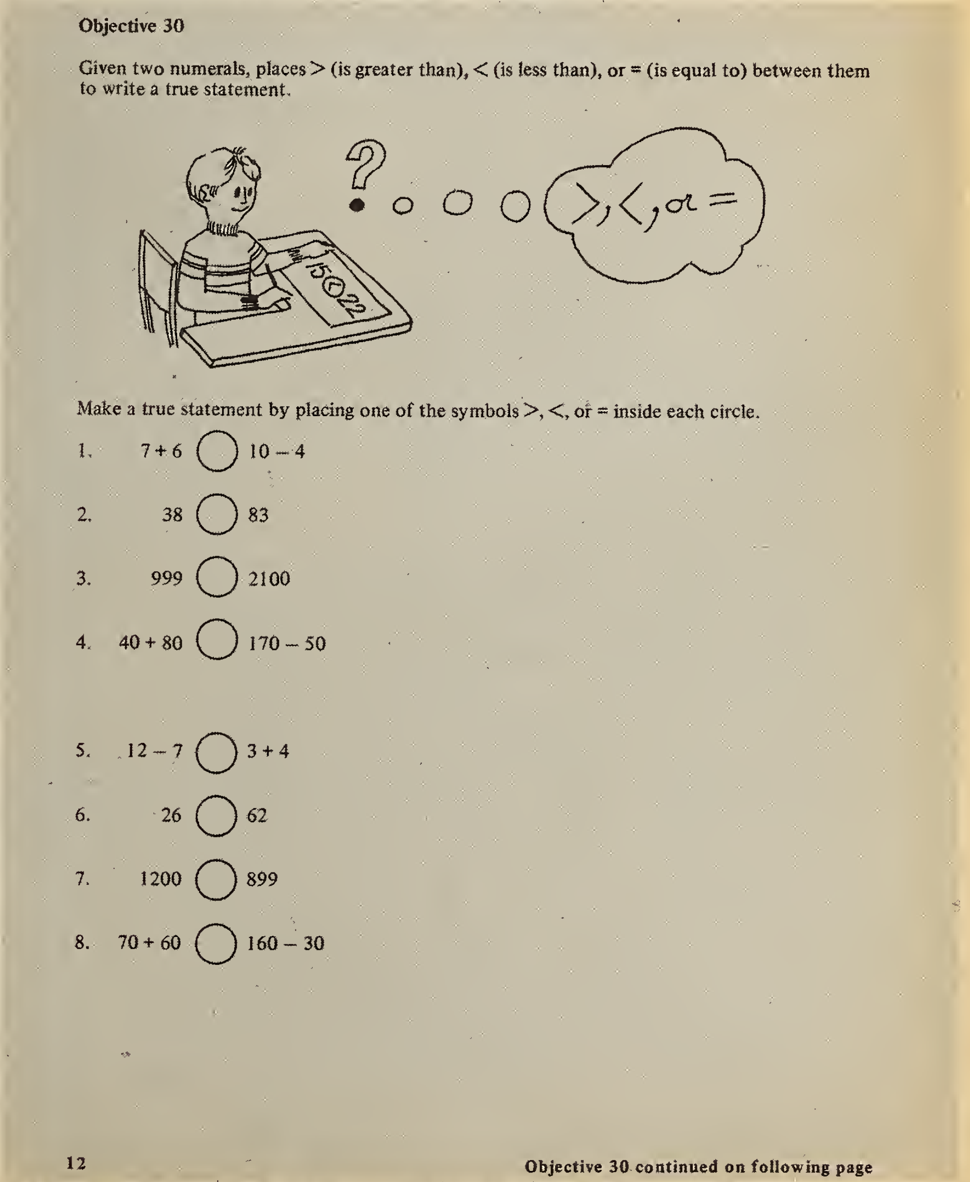
Before the MEMP committee could establish a sequence of objectives for grades 4 to 6, the members had first to make a list of objectives for grades K to 3; and although test items are not provided for these objectives, teachers of grades K to 3 may still find the list a useful resource. The committee members wrote instructional objectives for the following topics:

Experiences with Sets and Numbers
Addition and Subtraction
Multiplication and Division
Mixed Operations
Fractions and Decimals
Ratio and Percent
Measurement
Geometry

The next job was to compile lists of companion test items to measure the attainment of the objectives, and beginning with the Multiplication and Division package, teachers throughout Ontario have been helping to produce some of the word problems.

The first package, *Experiences with Sets and Numbers*, was published in November 1972. The second, Addition and Subtraction, is in press, and the other packages are at various stages of development. It is hoped that Multiplication and Division and Mixed Operations will be available in the spring of 1973, followed shortly after by Fractions and Decimals and Ratio and Percent.

Because the educational objectives in MEMP are stated in terms of student performance and are coupled with companion test items, the evaluation process differs from standardized testing and, in most cases, from the usual programs of student testing. In developing standardized tests, objectives common to a large number of schools are selected and the tests are designed accordingly. However, this pattern of objectives does not always correspond to the curriculum content of the individual classes in which the tests are administered. Furthermore, the part of the school program that is measured on the standardized test tends to become the 'valued' part of the program. By contrast, MEMP seeks to avoid a crystallizing effect on school curricula – the materials are designed to encourage diversity based on class or individual needs.



Objective 30

Given two numerals, places > (is greater than), < (is less than), or = (is equal to) between them to write a true statement.

Make a true statement by placing one of the symbols >, <, or = inside each circle.

1. 7 + 6 ○ 10 − 4
2. 38 ○ 83
3. 999 ○ 2100
4. 40 + 80 ○ 170 − 50
5. 12 − 7 ○ 3 + 4
6. 26 ○ 62
7. 1200 ○ 899
8. 70 + 60 ○ 160 − 30

12

Objective 30 continued on following page

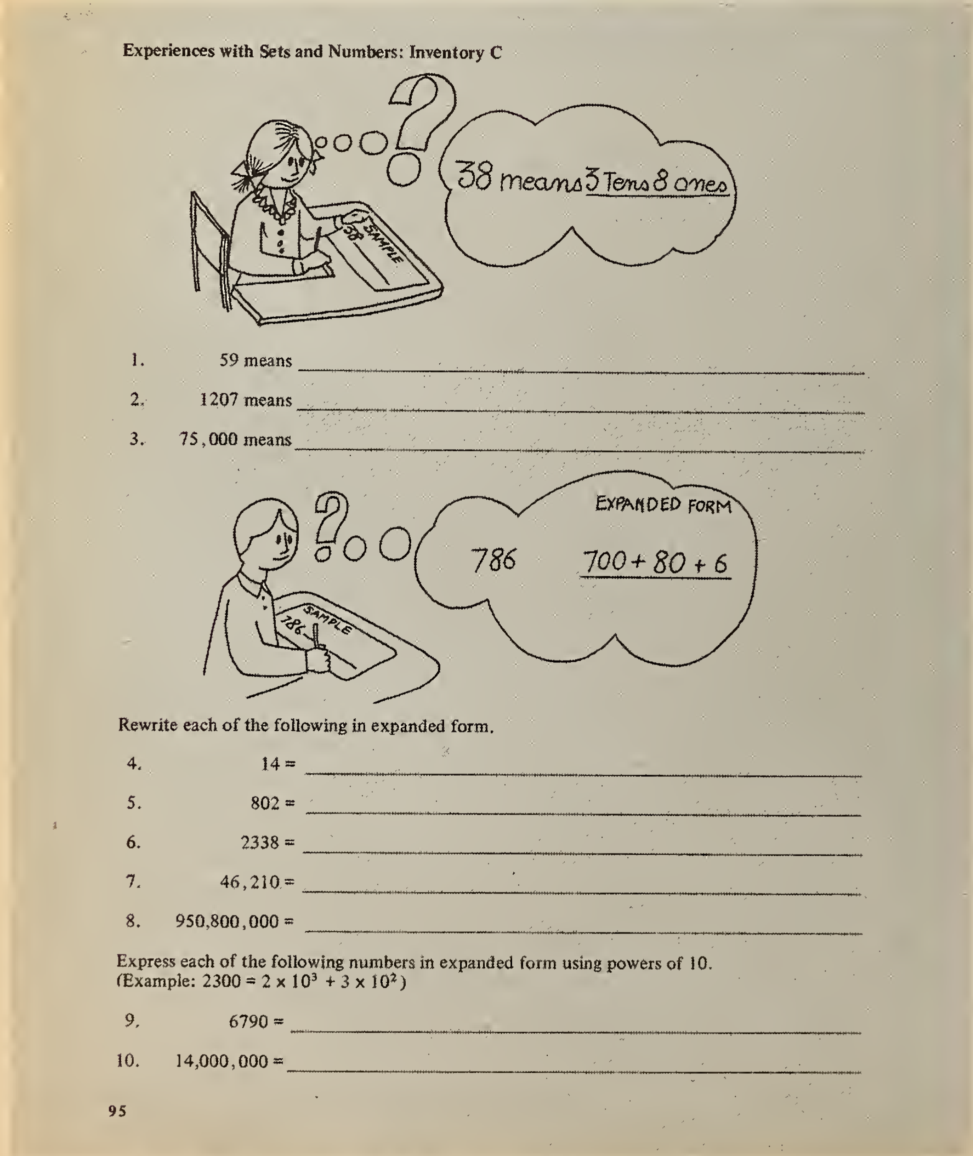
Page of test items for Objective 30 — *Experiences with Sets and Numbers*

Teacher-made tests typically reflect an emphasis on local programs, and hence do not suffer from the problems associated with standardized tests. However, they can often be improved through a careful analysis of program objectives and some trials of test items that correspond to the objectives. It is an analysis and trial process of this kind that was used in the development of MEMP. Thus, after test items for each objective were developed by the committee, they were tried out among students in various parts of the province. For example, fifty teachers worked under the direction of six coordinators in the trial stages of *Experiences with Sets and Numbers,* and eight coordinators and sixty-eight teachers assisted in the trial stages of the package Addition and Subtraction. The teachers were then encouraged to give comments about the materials, and after the papers of the pupils had been checked and the results analyzed, some minor revisions were made by the MEMP committee. Occasionally an item was deleted.

MEMP can be used for designing tests covering short units of work or for constructing longer tests. For some of the objectives, suggestions for oral work are given in order to stimulate discussion of reasons for a student arriving at his answer. The use of concrete materials is encouraged.

It is not intended that a teacher use all of the objectives listed. Furthermore, he may wish to supplement the given objectives with some of his own. A number of items have been included for each objective, and some students will need to work only a few of these items to test their mastery of a particular objective. Sufficient material has been included for retesting after remedial work has been done.

A set of cards is also included in each package. These duplicate many of the items in the booklet and are coded to indicate the objective and original item numbers. Selected cards furnish a convenient method of testing or retesting a child.


38 means 3 Tens 8 ones
38 SAMPLE
EXPANDED FORM
786
700 + 80 + 6
786 SAMPLE

Experiences with Sets and Numbers: Inventory C

1. 59 means ____________

2. 1207 means ____________

3. 75,000 means ____________

Rewrite each of the following in expanded form.

4. 14 = ____________

5. 802 = ____________

6. 2338 = ____________

7. 46,210 = ____________

8. 950,800,000 = ____________

Express each of the following numbers in expanded form using powers of 10.
(Example: $2300 = 2 \times 10^3 + 3 \times 10^2$)

9. 6790 = ____________

10. 14,000,000 = ____________

95

Page from a sample inventory — *Experiences with Sets and Numbers*

Some sample inventories are given as models of types of evaluation papers that can be prepared from items drawn from the package. In any specific inventory, the items are of a similar type and progress from simple to more difficult, enabling the teacher to determine how far a student has progressed along a continuum. These inventories are therefore helpful in diagnosing the kinds of difficulties students are having. Sometimes a teacher may find that having an individual student solve the items orally will afford the opportunity to observe and analyze the work methods employed in carrying out different operations.

In recent years, some people have applied the term 'diagnostic' to a variety of mathematics tests. Diagnosis is a matter of degree. Diagnostic tests are designed to provide an analysis of an individual's strengths and weaknesses in a particular area and to serve as a guide for remedial procedures. Most of the published diagnostic tests at the present time are designed to investigate reading difficulties. Few have been developed for mathematics. MEMP should be helpful for diagnostic purposes – for grade levels higher than 6 as well as the junior grades. For adults wanting refresher courses, MEMP inventories should also provide a good source for checking strengths and weaknesses.

Note: The first package of MEMP, *Experiences with Sets and Numbers*, is available through Publications Sales at OISE. The price is $3 plus 25¢ for handling charges.

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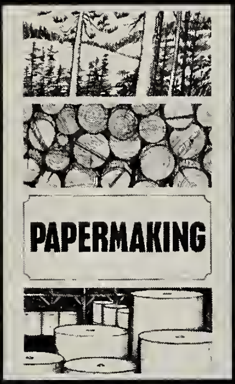
Teaching Aids from the Community

Domtar Fine Papers Ltd.

Readers are reminded that the production of teaching aids is costly and it is desirable that requests be based on specific plans for their use. The following materials from Domtar Fine Papers Ltd. were designed for the business community, but they have significance for a variety of school programs and the company is pleased to make them available to schools for resource or enrichment purposes.

In order to ensure maximum use of the materials and since some items are in short supply, it is suggested that requests be made by school principals or librarians so that sets may be centrally placed for use as required by members of staff. The materials are free of charge and requests should be addressed to:

Domtar Fine Papers Ltd.,
10 Gurney Crescent,
Toronto 19, Ontario.



Papermaking
A comprehensive look at the making of paper. A statement of the identifying characteristics and composition of wood introduces a step-by-step review of the production of paper. Each stage in the process – from the arrival of logs at the mill to the packaging of paper for delivery to customers – is succinctly described in the text and clearly illustrated in diagrams.

A Souvenir of Super 7
A scale model of Super 7 – the most modern and efficient fine paper machine in Canada – is easily constructed from the cardboard parts contained in this kit. Detailed instructions for assembling are included. Information on the machine can be found in the folder, and the significant parts are identified by color on the model.

Ecolonews
A monthly newsletter on the subject of pollution control and environment improvement. The newsletter is brief and factual and gives specific information on Domtar's contribution to the protection of the environment. *Ecolonews* reveals many of the less obvious pollution problems faced by industry and the means of overcoming them.

Paper
from
Waste
A realistic look at the
ecological problems of paper waste re-use...
What is being done about it...
What are the opportunities to do more.
by
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Paper from Waste
The use of reclaimed material is generally regarded as a result of the environmental concern of recent years, but it has long been a part of the paper industry. This report defines 'recycled' or 'reclaimed' fibers, outlines their sources, and describes Domtar's approach to fiber reclaiming. Statistical information on the company's six Ontario and Quebec mills gives the annual output of each, the percentage of reclaimed material in that output, and the amount of waste material used. The report's environmental significance makes it particularly valuable.

'I Am Paper'
A brief review of the history of paper – it was first produced in Cathay in 105 A.D. – and its place in the lives of men. The personal tone of the booklet places facts about paper in a broad and meaningful context.

Zion Heights Junior High School

Profile of a School/18

'With an open plan school, you need to be much more highly organized, although to the casual visitor, most of the organization lies hidden below the surface.' So says Mr. Robert Matheson, current principal of Zion Heights, the first open plan junior high school in the Borough of North York. Opened in 1968, the school has an enrollment of over nine hundred students and spans grades 7 to 9. The students are divided in mixed grades among three houses, and each house is divided into approximately a dozen units of twenty-five students of the same grade. A specific teacher is responsible for the general welfare and administration of each unit – in all, there are forty-one units, so that most staff members are involved in this responsibility. These units also provide the basis for class timetabling.

In terms of its academic structure, Zion Heights closely resembles a high school, with thirteen departments covering the various subject disciplines. Each department is allocated a specific instructional area, and the open plan architecture allows great flexibility in teaching techniques. For example, with three student units of the same grade studying French at the same time, one teacher can handle the bulk of the students in an open area while two other teachers work with small groups in seminar rooms.

Certain subjects, such as English, French, and mathematics, are mandatory for all students. With other subjects such as art, home economics, and music, the students make their own choices. In grade 9, the students may also choose theater arts or consumer education. An interesting feature of the consumer education program is the running of a small in-school store by the students; the store sells school supplies, capital is raised by selling shares to the students in the class, and the entire operation of the store is the students' responsibility. Extracurricular activities, encouraged by the house system, play an important part in student life.

At both staff and student levels, close liaison is maintained with the feeder elementary schools and with the new open plan high school, A. Y. Jackson, to which most of the students proceed. 'An enormous advantage of a junior high school,' says Mr. Matheson, 'is that we are handling an identifiable group of preadolescents, and we are in a better position to prepare them for high school.'

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